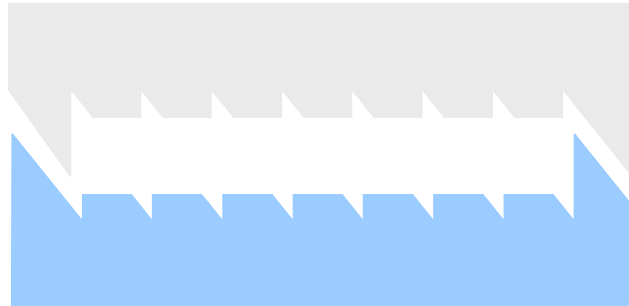




# United States Department of Housing and Urban Development



## Information Technology Strategic Plan

FY 2005 – FY 2010

strategic  
PLANNING  
PRACTICE

HUD BLUEPRINTS  
BUILDING IT TOGETHER

## **A Message from the Chief Information Officer**

*The vision of the CIO is to provide modern information technology that is secure, accessible, and cost effective; that meets customer needs; and exceeds their expectations.*

As technology continues to reshape our world, the U.S. Department of Housing and Urban Development (HUD) must be prepared to meet and exceed the rising expectations of the citizens we serve as well as our business partners. We have been working hard at HUD to modernize the information technology (IT) that supports our business processes and serves our citizens. HUD strives to provide IT that can meet the needs of today and anticipate the needs of tomorrow. The rapid evolution of technology means HUD must be a government leader in understanding and applying new technologies to better support the mission and business operations of the Department.

The management of this important resource is emphasized by the Congressional requirement for Federal agencies to develop IT strategic plans that must be linked to performance and budget. This IT Strategic Plan provides a well-defined strategy for managing IT in support of the Department's mission and sets the direction for the future of HUD IT. This plan highlights the commitment of our staff to improve the way IT supports HUD's mission and business operations. HUD will ensure its IT resources are well aligned to the business needs of the Department by continually assessing its IT strategy and being accountable for IT performance.

The mission of HUD is our priority. We have defined the future of HUD IT within the context of providing our staff with the tools and resources to accomplish the HUD mission, and providing our citizens and business partners with the highest quality service. We are committed to transforming the way HUD conducts its business.



Lisa Schlosser  
Chief Information Officer  
U.S. Department of Housing and Urban Development

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## 1 EXECUTIVE SUMMARY

### 1 EXECUTIVE SUMMARY

The purpose of the Housing and Urban Development (HUD) Information Technology (IT) Strategic Plan FY 2005 – FY 2010 is to establish Department-wide IT strategic priorities that promote achievement of HUD's mission and desired business outcomes.

#### Business Alignment

HUD believes that IT is an enabler of its mission and desired business outcomes. HUD's 2005 Information Technology Strategic Planning (ITSP) process began with the identification of business imperatives and associated IT strategic themes with the most impact on mission. Through a facilitated goal development session, key stakeholders (defined in Appendix C) used the strategic themes to define IT goals. HUD's IT goals directly support the Department's crosscutting management goal, and indirectly support HUD's mission as defined in Exhibit 1-1 below.

#### 2005 ITSP Process

Participants in the 2005 ITSP development process included the CIO, Deputy CIO, and staff from IT Security, IT Operations, Information Technology Investment Management (ITIM) and Performance, Enterprise Architecture (EA), Policy and E-Government, Systems Integration and Efficiency, and Policy Development & Research (PD&R). HUD's General Deputy Assistant Secretaries, representing business stakeholders recently conducted a separate facilitated process to develop HUD's workforce strategy; business input for the IT strategic plan was acquired through documentation developed during the workforce strategy

development process.

ITSP staff first completed an environmental analysis that examined the current IT landscape of the Department. The ITSP staff then facilitated three working sessions addressing the development of an IT vision and mission, values, and goals. Several objectives sessions were also held with identified goal owners and additional representatives. Finally, measures used to monitor progress against objectives and goals were developed. Appendix C provides a complete description of the 2005 ITSP process.

#### HUD's IT Strategy

Increased customer satisfaction is the pinnacle of the IT strategy. The IT community defines its customers as the business stakeholders within HUD's program areas. The IT community realizes that IT is an enabler of HUD's mission, directly supporting HUD's business by supporting HUD's intermediate customer, industry business partners, and the ultimate customer, the citizen.

The top level components of HUD's IT strategy (vision, mission, and goals) are identified in Exhibit 1-2. The mission statement defines why HUD's IT organization exists. The vision paints a picture of the future desired state of the HUD's IT. Goals exist as individual strategies working together to overcome the barriers and challenges of reaching the vision and mission. Goals were developed from a set of strategic themes shaped during the environmental analysis. HUD's mission, vision, and goals are 3-5 year strategies. HUD's objectives address 1-2 year priorities designed to achieve the strategy's goals. Objectives and

#### Exhibit 1-1- HUD's Mission and Business Strategy Crosscutting Goal

**HUD's Mission:** Increase homeownership, support community development, and increase access to affordable housing free from discrimination

**Crosscutting Goal:** Embrace high standards of ethics, management and accountability

#### Objectives

- Rebuild HUD's human capital and further diversify its workforce.
- Improve HUD's management, internal controls and systems and resolve audit issues.
- Improve accountability, service delivery and customer service of HUD and its partners.
- Ensure program compliance.
- Improve internal communications and employee involvements.

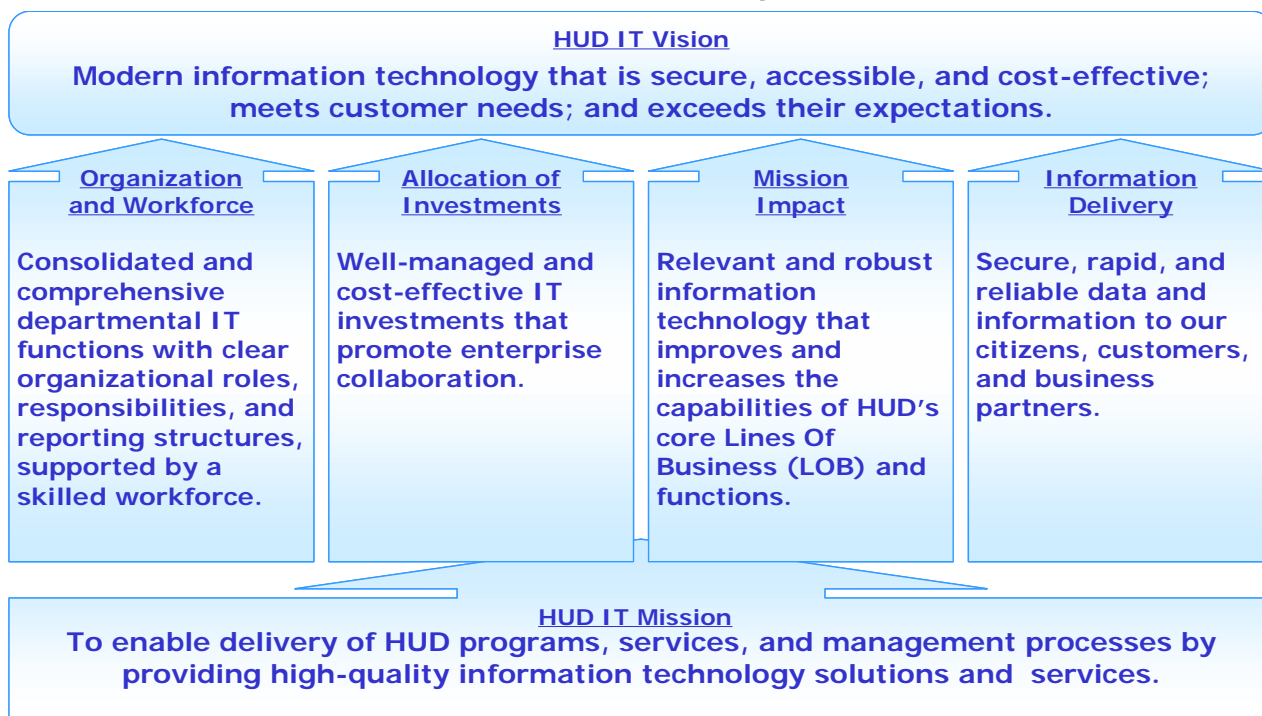
## 1 EXECUTIVE SUMMARY (Continued)

objective measures associated with each goal can be found in Chapter 3. Additionally, Chapter 3 introduces the IT values of the organization, which are a set of behavioral principles that inform the strategy.

### Next Steps

The immediate successor to this plan is the Implementation Action Plan, which will provide HUD with tactical strategies to achieve objectives. HUD will proactively monitor and manage progress in implementing the strategy through quarterly reviews. In addition, HUD maintains other planning documents that are driven by the IT Strategic Plan. These plans include the E-government Strategic Plan, EA Target and Transition Plans as well as the Strategic Portfolio Review (SPR). All HUD IT planning efforts support the mission and business operations of the Department.

Exhibit 1-2 - HUD IT Strategic Map



## 2 INTRODUCTION

## 2 INTRODUCTION

HUD was established in 1965 to coordinate and administer programs that provide assistance for housing, community development, and fair housing opportunities. The nature of HUD's mission creates a business environment that is highly reliant on IT. This IT Strategic Plan details the IT strategies that will best support the HUD mission and goals, and advance the most effective and efficient use of IT resources across HUD while maintaining a focus on the customer.

### 2.1 Purpose and Benefits

The purpose of the HUD IT Strategic Plan FY 2005 – FY 2010 is to establish Department-wide IT strategic priorities that promote achievement of HUD's mission and desired business outcomes. Benefits of the IT Strategic Plan include:

- A common, clear vision for the strategic direction of HUD's IT;
- Improved operational efficiency through more directed IT investments; and
- Alignment of IT efforts and resources to HUD's business strategy.

### 2.2 Audience

The primary audiences for this document are HUD's internal and external IT stakeholders, listed in Exhibit 2-1 below.

**Exhibit 2-1 -  
HUD IT Strategic Plan Audience**

Internal Audience	External Audience
<ul style="list-style-type: none"><li>▪ IT Community</li><li>▪ Executives</li><li>▪ Program Areas</li><li>▪ Office of the Inspector General (OIG)</li></ul>	<ul style="list-style-type: none"><li>▪ Office of Management and Budget (OMB)</li><li>▪ Government Accountability Office (GAO)</li><li>▪ HUD business partners (e.g. financial institutions and other peer agencies)</li><li>▪ Interagency workgroups</li></ul>

### 2.3 HUD's Agency Strategic Plan

HUD's Departmental strategies are defined in the HUD Strategic Plan for FY 2003 – FY 2008, in which HUD's mission is below:

HUD Mission
Increase homeownership, support community development, and increase access to affordable housing free from discrimination.

To achieve this mission, HUD defined three programmatic and three crosscutting strategic goals. Programmatic goals apply to specific program area efforts. Crosscutting goals represent HUD priorities that have an enterprise-wide impact, affecting each of HUD's program areas. Both programmatic and cross-cutting goals benefit families and communities. The goals and their supporting objectives are described in Exhibit 2-2.

#### Alignment of Business and IT Strategies

HUD maintains the perspective that IT is an enabler of HUD's mission and desired business outcomes. Therefore, alignment of the HUD IT Strategic Plan with the HUD Strategic Plan and business is critical. Links between business and the IT are demonstrated in three specific ways:

- The HUD IT mission and vision are directly linked to HUD's crosscutting goals (refer to Exhibit 2-2), and specifically the "Embrace high standards of ethics, management and accountability" goal.
- Program Assessment Rating Tool (PART) reviews are assessments of HUD's business programs and can include both business and IT efficiency opportunities. PART reviews helped shape several overarching themes that were used in developing the strategy. These include interoperability issues among systems, automation of manual processes, and the need for increased IT capabilities.
- HUD's IT goals, specifically Organization and Workforce, Allocation of Investments, and Information Delivery indirectly support all of HUD's programmatic goals. Without

## 2 INTRODUCTION (Continued)

a sound infrastructure, well managed IT projects, and an IT workforce that provides IT services, HUD employees and capabilities would not be performing to their potential.

### 2.4 Current IT Landscape

#### Summary of IT Organizational Landscape

In addition to the centralized IT functions within the OCIO, HUD's 11 program areas also provide IT services. This organizational structure provides opportunities to provide specialized IT support to the program areas, but it also renders a complex IT landscape as duplicative efforts can be initiated.

#### IT Landscape

HUD's IT comprises over 200 disparate systems. A majority of HUD's IT portfolio is spent on maintaining these systems. Expensive maintenance costs, in some cases, can be attributed to the existence of legacy systems. Adding to the complexity is HUD's dependence upon several thousands of business partners for delivery of its information and services to achieve the HUD mission. The inherent challenges to such a business model are the sharing and exchange of data across HUD and its business partners.

Exhibit 2-2 - HUD's Business Strategy

	Increase homeownership opportunities	Promote decent affordable housing	Strengthen communities
Programmatic Strategic Goals	<ul style="list-style-type: none"> <li>Expand national homeownership opportunities.</li> <li>Increase minority homeownership</li> <li>Make the homebuying process less complicated and less expensive.</li> <li>Fight practices that permit predatory lending.</li> <li>Help HUD-assisted renters become homeowners.</li> <li>Keep existing homeowners from losing their homes.</li> </ul>	<ul style="list-style-type: none"> <li>Expand access to affordable rental housing.</li> <li>Improve the physical quality and management accountability of public and assisted housing.</li> <li>Increase housing opportunities for the elderly and persons with disabilities.</li> <li>Help HUD-assisted renters make progress toward self-sufficiency.</li> </ul>	<ul style="list-style-type: none"> <li>Provide capital and resources to improve economic conditions in distressed communities.</li> <li>Help organizations access the resources they need to make their communities more liveable.</li> <li>End chronic homelessness and move homeless families and individuals to permanent housing.</li> <li>Mitigate housing conditions that threaten health.</li> </ul>
Crosscutting Strategic Goals	<b>Ensure equal opportunity in housing</b>		
	<ul style="list-style-type: none"> <li>Resolve discrimination complaints on a timely basis</li> <li>Promote public awareness of fair housing laws</li> <li>Improve housing accessibility for persons with disabilities.</li> </ul>		
	<b>Embrace high standards of ethics, management and accountability</b>		
	<ul style="list-style-type: none"> <li>Rebuild HUD's human capital and further diversify its workforce.</li> <li>Improve HUD's management, internal controls and systems and resolve audit issues.</li> <li>Improve accountability, service delivery and customer service of HUD and its partners.</li> <li>Ensure program compliance.</li> <li>Improve internal communications and employee involvements.</li> </ul>		
	<b>Promote participation of faith-based and community organizations</b>		
	<ul style="list-style-type: none"> <li>Reduce regulatory barriers to participation by faith-based and community organizations.</li> <li>Conduct outreach to inform potential partners of HUD opportunities.</li> <li>Expand technical assistance resources deployed to faith-based and community organizations.</li> <li>Encourage partnerships between faith-based/community organizations and HUD's traditional grantees.</li> </ul>		



## 2 INTRODUCTION (Continued)

### IT Management Landscape

The Department has initiated a number of improvements to the management of its IT portfolio, as evidenced by the ITIM, E-Government, and EA programs. A more detailed description of each of these is provided in Appendix E. Additionally, HUD has launched a campaign to modernize its IT through segment architectures. Segments are architectures for a LOB or a common crosscutting IT service. Key HUD IT modernization efforts that are either completed or in progress are identified below:

- HUD Financial Management Segment Architecture
- HUD Human Resources (HR) Segment Architecture
- Grants Segment Architecture
- Single Family Housing (SFH) Segment Architecture
- Rental Housing Assistance (RHA) Segment Architecture
- E-Government Initiatives Internal
- E-Government Presidential Priorities (HUD is participating in 17 of 24)

HUD has plans to manage its modernization initiatives through its IT Lifecycle Framework, as depicted in Exhibit 2-3 below. The Framework is a conceptual lifecycle for all IT initiatives. First, an architecture must be defined through the EA Target and segment architectures. As a result, initiatives or LOB needs are defined. Second, initiatives are funded through an investment phase. Finally, investments are implemented.

**Exhibit 2-3 -  
HUD IT Lifecycle Framework**

Architecture	Investment	Implementation
<ul style="list-style-type: none"><li>▪ Develop and maintain EA</li><li>▪ Review, reconcile and approve segment architecture</li></ul>	<ul style="list-style-type: none"><li>▪ Select IT initiatives to define HUD's IT investment portfolio</li><li>▪ Control IT investments</li><li>▪ Evaluate IT investments</li></ul>	<ul style="list-style-type: none"><li>▪ Develop and maintain segment architecture</li><li>▪ Develop IT program management plan</li><li>▪ Execute IT projects</li></ul>

### 3 HUD IT STRATEGY

### 3 HUD IT STRATEGY

#### 3.1 HUD IT Customers

HUD views IT as an enabler of the Department's mission. HUD's primary IT customers are HUD employees who use IT products and services to carry out the mission. In addition, HUD's IT customers include HUD's customers and business partners, including citizens, businesses, and government agencies. A primary desired outcome for this IT strategy is a high level of satisfaction among IT customers. HUD's customer groups are defined below.

HUD's IT strategy serves to increase customer satisfaction. The customers of this strategy are in large part the business stakeholders within the program areas. However, these customers are served with the intent of ultimately meeting the needs of HUD's more direct customers: business partners and citizens. HUD's distinct customer segments are defined below.

#### HUD Employees

As the primary stewards for carrying out HUD's mission, HUD employees use IT every day to

accomplish their work. Whether employees' functions are mission-facing (such as those performed by program area staff) or primarily administrative support functions, IT makes a daily impact on HUD employees' abilities to carry out their mission.

#### HUD Business Partners

HUD's business partners, such as financial institutions and other government agencies, rely on HUD IT for exchanging data and information. The speed and accuracy of this exchange is a critical element for achieving HUD's mission.

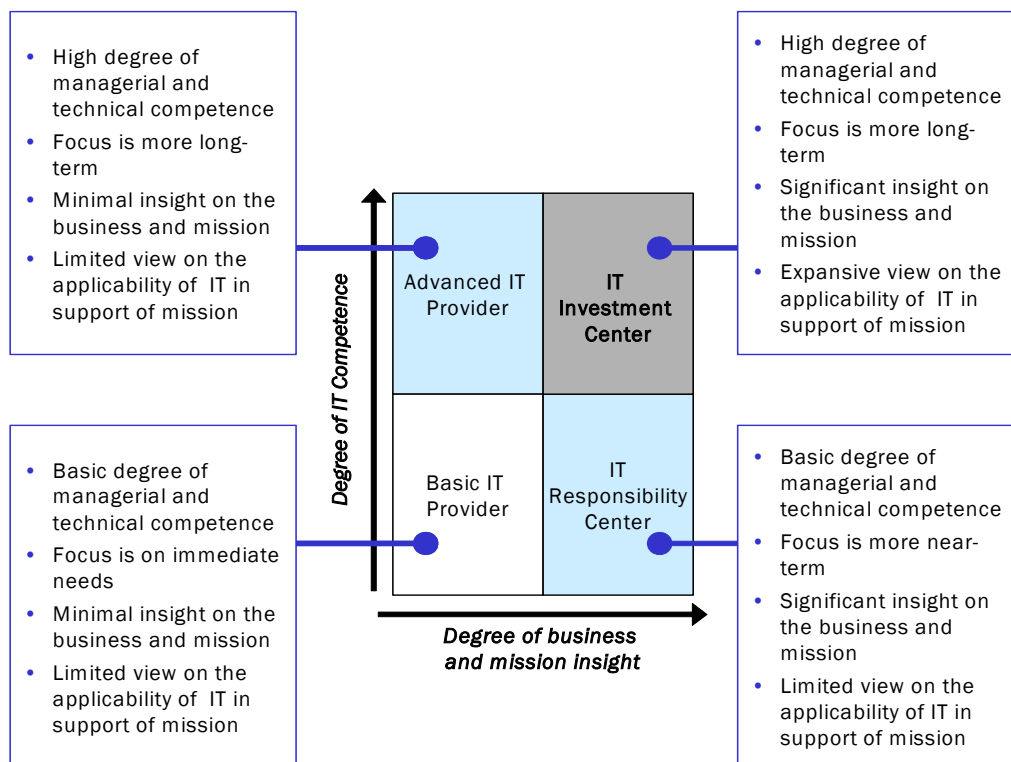
#### Citizens

HUD's ultimate customer is the citizen. Although a limited number of IT systems and applications directly touch the citizen, a majority of HUD's IT exists to provide information and services to the citizen.

#### 3.2 HUD as an IT Service Provider

With this IT Strategic Plan, HUD is reaffirming its commitment to serving the customer. From a customer-centric perspective, the quality of IT services are affected by two primary factors: the degree of technical competence and the degree of business and mission insight

**Exhibit 3-1 - Types of IT Service Providers**



### 3 HUD IT STRATEGY (Continued)

demonstrated by the organization's IT community. Exhibit 3-1 above demonstrates the influence of these two factors. HUD is currently in between the basic IT provider and the IT responsibility center. HUD participants agreed that they have a basic degree of technical competence and focus on immediate needs. HUD staff also have a basic understanding of the business and mission. The opportunity for HUD would be to expand their view on the applicability of IT in support of the mission. HUD desires a blend of the advanced IT provider and the IT investment center. HUD's stakeholders also noted that their extensive use of contracts for IT services and support will require the high degree of managerial and technical competence found in an advanced IT provider. HUD also desires its IT to focus on long-term needs and priorities, but requires a greater degree of business and mission insight than is offered by an advanced IT provider. HUD's ideal is the expansive view on the applicability of IT in support of the mission offered by an IT investment center. IT investment centers, however, require an appetite for risk to be able to experiment with leading edge technologies. As a Federal agency, HUD must be more judicious in its application of resources and technology. The IT strategic

components defined in the subsequent sections define HUD's path to achieving the balance between an advanced IT provider and IT investment center. Top level components of the strategy are illustrated in Exhibit 3-2 below.

#### 3.3 Mission

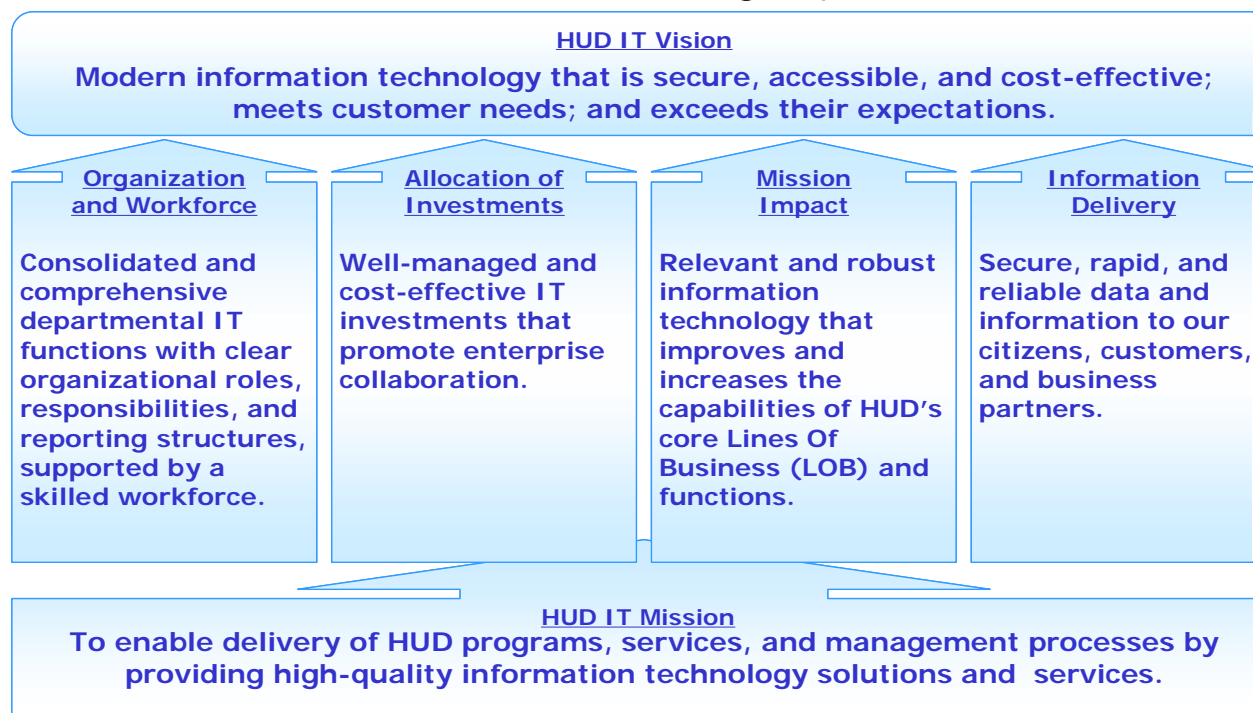
The IT mission statement of HUD articulates what HUD IT does and why it exists. Defined collaboratively by HUD IT stakeholders, the mission statement is the primary driver of the Department's IT strategy. The HUD IT mission statement is as follows:

***To enable delivery of HUD programs, services, and management processes by providing high-quality information technology solutions and services.***

#### 3.4 Vision

HUD's IT vision is built upon the IT mission. It describes what HUD IT needs to be in the future in order to accomplish its mission and support the HUD mission. The HUD IT vision is as follows:

Exhibit 3-2 – HUD IT Strategic Map



### 3 HUD IT STRATEGY (Continued)

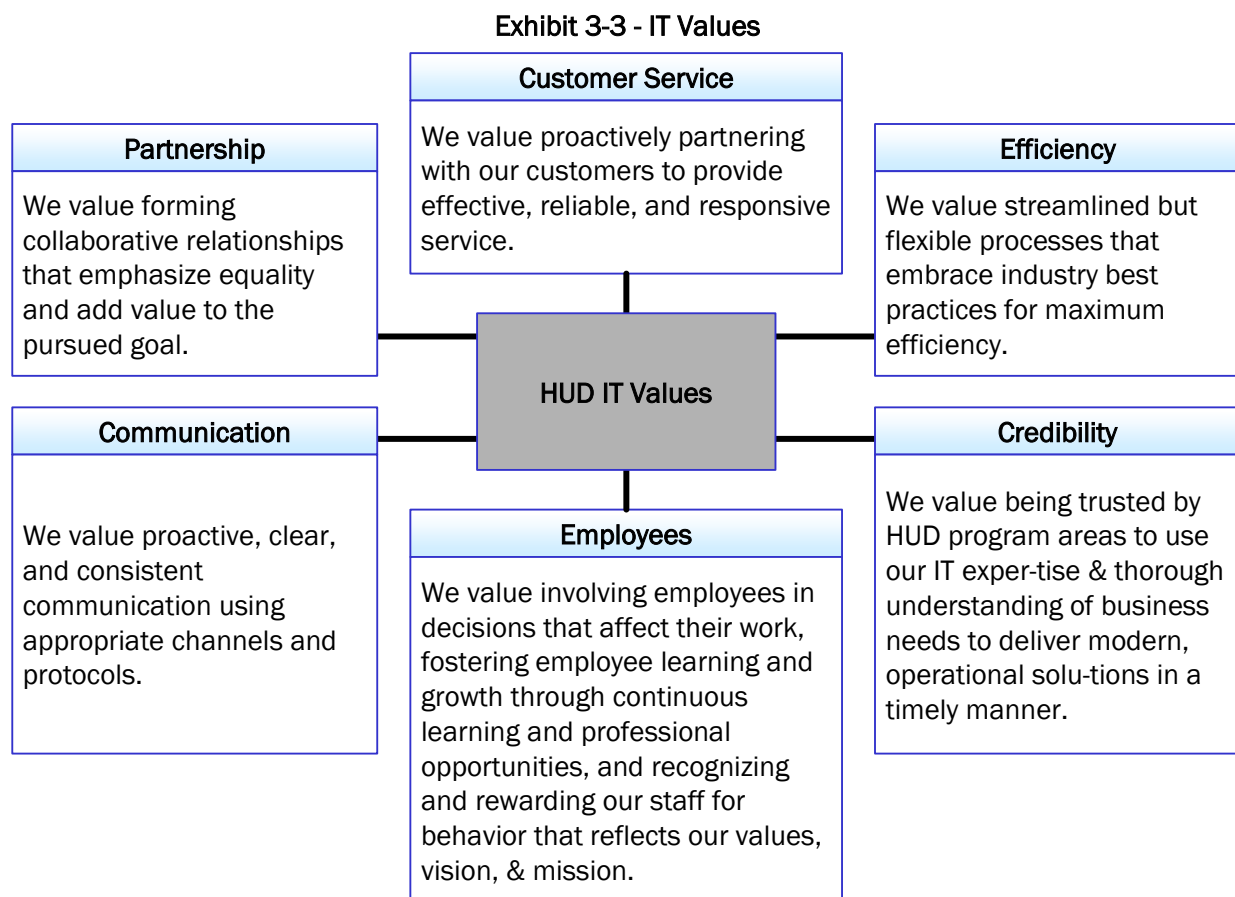
*Modern information technology that is secure, accessible, and cost-effective; meets customer needs; and exceeds their expectations.*

#### 3.5 IT Community Values

HUD's IT staff abide by IT community values that describe core behavioural principles that HUD's IT staff abide by in order to accomplish the IT mission and achieve the IT vision. These values help shape the relationships between HUD IT staff and their customers and influence how IT staff behave with their colleagues and co-workers. The six IT community values are defined in Exhibit 3-3.

#### 3.6 IT Goals, Objectives, and Measures

After defining the IT mission, vision, and values, HUD identified four strategic goals and supporting objectives that provide a long-term roadmap for fulfilling the IT mission and achieving the IT vision. These goals and their supporting objectives are displayed in Exhibit 3-4 below. The exhibit is followed by brief discussions of each goal.



### 3 HUD IT STRATEGY (Continued)

HUD will evaluate its progress in achieving these goals and their associated outcomes using the measures provided in Exhibit 3-5.

Additionally, emerging technologies and trends for goals and objectives, found in Appendix A, can be leveraged as additional

**Exhibit 3-4 - HUD IT Goals and Objectives**

<b>Goal 1: Organization &amp; Workforce</b>	<b>Objectives</b>
<i>Consolidated and comprehensive departmental IT functions with clear organizational roles, responsibilities, and reporting structures, supported by a skilled workforce.</i>	<ul style="list-style-type: none"> <li>1.1 Improve collaboration between the OCIO and program areas by end of 2nd quarter FY 2006.</li> <li>1.2 Finish implementing the proposed "Optimal OCIO structure" by end of 4th quarter FY 2005.</li> <li>1.3 Establish clear roles and responsibilities for OCIO offices and program area IT units by end of 2nd quarter FY 2006.</li> <li>1.4 Consolidate the IT functions across the Department by end of 4th quarter FY 2006.</li> <li>1.5 Recruit and retain a skilled IT workforce by end of 1st quarter FY 2007.</li> </ul>
<b>Goal 2: Allocation of Investments</b>	<b>Objectives</b>
<i>Well-managed and cost-effective IT investments that promote enterprise collaboration.</i>	<ul style="list-style-type: none"> <li>2.1 Increase the level of technical standardization across HUD IT by the FY 2008 Select.</li> <li>2.2 Allocate increased Development Maintenance Enhancement (DME) funding share to support new capabilities/modernization as defined through segment architectures by the FY 2008 Select.</li> <li>2.3 Increase use of reusable components and shared services by FY 2008 Select.</li> <li>2.4 Increase use of Commercial Off-the-Shelf (COTS) or Government Off-the-Shelf (GOTS) solutions across HUD by FY 2008 Select.</li> <li>2.5 Improve IT program and project management capabilities by end of 4th quarter FY 2006.</li> </ul>
<b>Goal 3: Mission Impact</b>	<b>Objectives</b>
<i>Relevant and robust IT that improves and increases the capabilities of HUD's core LOBs and functions.</i>	<ul style="list-style-type: none"> <li>3.1 Define, prioritize, and sequence segment architectures around core LOBs and functions by end of 2nd quarter FY 2005.</li> <li>3.2 Integrate business and IT planning processes by end of 1st quarter FY 2006.</li> <li>3.3 Develop trusted partnerships in support of program area and IT collaboration by end of 1st quarter FY 2006.</li> <li>3.4 Develop and implement a comprehensive performance management framework by end of 1st quarter 2007.</li> <li>3.5 Collaboratively define business needs, functional requirements, and architectures with business and IT stakeholders by 3rd quarter FY 2007.</li> </ul>
<b>Goal 4: Information Delivery</b>	<b>Objectives</b>
<i>Secure, rapid, and reliable data and information to our customers, citizens, and business partners.</i>	<ul style="list-style-type: none"> <li>4.1 Transition and implement an Enterprise IT Disaster Recovery Facility by end of 4th quarter FY 2005.</li> <li>4.2 Secure and refresh HUD's infrastructure by 1st quarter 2006.</li> <li>4.3 Develop and implement an enterprise security program that meets all security and privacy-related regulations, statutes, and Federal laws by 1st quarter FY 2006.</li> <li>4.4 Implement the HUD-wide data quality management practice by end of 4th quarter FY 2006.</li> <li>4.5 Develop OCIO and program area partnerships in developing E-Government solutions by 4th quarter FY 2006.</li> </ul>

### 3 HUD IT STRATEGY (Continued)

strategies.

#### 3.6.1 Goal One: Organization and Workforce

Development of this goal was based on the integration of two strategic themes: IT Organization and the IT Workforce. A challenge shared by every Federal agency is that one of an aging workforce. By 2008, over 45% of the Federal IT workforce will be over the age of 50.<sup>1</sup> In recognition of this impending challenge, a strategic theme regarding the IT workforce was given high priority. Increasing the numbers and skills of the workforce, however, is not sufficient to

address related issues that were identified in the Strengths Weaknesses Opportunities Threats (SWOT) analysis. The SWOT analysis yielded organizational gaps, unclear roles and responsibilities, lack of standard operating procedures, and redundant and/or conflicting IT functions. Please see Appendix D for the SWOT. Improving HUD's IT organizational structures will result in an IT community that is more agile and responsive to the dynamic needs of their customers. HUD identified five strategic IT objectives, displayed in Exhibit 3-6 below, to achieve this goal.

**Exhibit 3-5 - IT Goals, Outcomes, and Measures**

<b>Goal 1: Organization &amp; Workforce</b>	<b>Outcomes</b>	<b>Measures</b>
<i>Consolidated and comprehensive departmental IT functions with clear organizational roles, responsibilities, and reporting structures, supported by a skilled workforce.</i>	Increased customer and stakeholder satisfaction.	Percentage of HUD IT customers who are satisfied with the following, as reported by an annual survey: <ul style="list-style-type: none"> <li>- Comprehensiveness of HUD's IT services</li> <li>- Ease of access to HUD's IT services and staff</li> <li>- Understanding of HUD's IT organizations, functions, and services</li> <li>- Knowledge, skills, and abilities provided by HUD IT staff</li> </ul>
<b>Goal 2: Allocation of Investments</b>	<b>Outcomes</b>	<b>Measures</b>
<i>Well-managed and cost-effective IT investments that promote enterprise collaboration.</i>	Optimal utilization of resources.	Percentage of IT investments with a defined strategy for enterprise collaboration that are completed on time and on budget.
<b>Goal 3: Mission Impact</b>	<b>Outcomes</b>	<b>Measures</b>
<i>Relevant and robust IT that improves and increases the capabilities of HUD's core LOBs and functions.</i>	Increased operational effectiveness for HUD's core LOBs and functions.	Percentage of IT initiatives that can be clearly linked to operational improvements.
<b>Goal 4: Information Delivery</b>	<b>Outcomes</b>	<b>Measures</b>
<i>Secure, rapid, and reliable data and information to our customers, citizens, and business partners.</i>	Improved service delivery.	Percentage of customers and business partners who are satisfied with the security, rapidness, and reliability of HUD provided data and information, as reported in an annual survey.

<sup>1</sup> *Aging Federal IT Workforce: Trends and Solutions*, INPUT, February 3, 2005.

### 3 HUD IT STRATEGY (Continued)

This goal and its associated objectives directly supports HUD's strategic objective: *Rebuild HUD's human capital and further diversify its workforce.*

#### 3.6.2 Goal Two: Allocation of Investments

Management of IT investments is a top priority for HUD, particularly given ongoing budget constraints. This goal is founded upon the strategic theme of reducing IT maintenance costs to be able to fund needed new capabilities and modernization efforts. This goal seeks to increase the use of reusable components, through the use of HUD's ITIM process, shared services and Service Oriented Architectures (SOA), Commercial off-the-shelf (COTS)/Government off-the-shelf (GOTS) products, and compliance with technical standards. To improve the execution of these initiatives, this goal emphasizes the need for improved program and project management. Five objectives were identified in support of this goal, as displayed in Exhibit 3-6 below.

This goal and its associated objectives support HUD's strategic objective" *Improve HUD's management, internal controls and systems and resolve audit issues.*

#### 3.6.3 Goal Three: Mission Impact

Since IT is an enabler of the HUD mission, this goal focuses on improving the impact of IT on HUD's core LOB and functions, and as a result, improving HUD's service delivery and customer service. A primary component of this goal is the integration of the IT and business communities to engage in collaborative strategic and planning efforts. Some examples

of modernization projects that are improving business outcomes through LOB planning efforts include the Financial Management Segment Architecture, HR Segment Architecture, Grants Segment Architecture, Single Family Housing Segment Architecture, and the Rental Housing Assistance Segment Architecture. In addition, this goal leverages the Department's segment architectures and the EA transition plan to improve alignment of HUD's IT resources to its strategic business priorities. Four objectives, which are displayed in Exhibit 3-6 below, were identified in support of this goal. This goal and its associated objectives align with HUD's strategic objective: *Improve accountability, service delivery, and customer service of HUD and its partners.*

#### 3.6.4 Goal Four: Information Delivery

This goal provides for a particular focus on the needs of HUD's employees, business partners, and citizens. Strategic themes regarding security, privacy, and confidentiality, and improved access to information were integrated to develop this IT goal. The SWOT and other analyses confirmed the need to improve the quality of HUD data and information, as well as the infrastructure on which it resides. Five strategic objectives, provided in Exhibit 3-6, were identified to support this goal. This goal is in direct alignment with HUD's strategic objective: *Improve accountability, service delivery, and customer service of HUD and its partners.*

### 3 HUD IT STRATEGY (Continued)

#### 3.7 Objectives and Measures

IT objectives describe how HUD will achieve each of its four IT goals. Exhibit 3-6 displays the HUD IT objectives, expected outcomes, and measures that will be used to evaluate progress.

**Exhibit 3-6 - IT Objectives, Outcomes, and Measures**

IT Objectives	Outcomes	Measures
<b>Goal 1: Organization and Workforce</b>		
1.1 Improve the collaboration between the OCIO and program areas by end of 2nd quarter FY 2006.	Improved internal communication.	<ul style="list-style-type: none"> <li>Percentage of program area staff satisfied with the speed, accuracy, and type of information being shared between themselves and the OCIO, as reported by a quarterly survey.</li> </ul>
1.2 Finish implementing the proposed "Optimal OCIO structure" by end of 4th quarter FY 2005.	Improved OCIO operational efficiency.	<ul style="list-style-type: none"> <li>Percentage of OCIO staff realigned to the reporting structures and positions as defined in the optimal OCIO structure.</li> </ul>
1.3 Establish clear roles and responsibilities for OCIO offices and program area IT units by end of 2nd quarter FY 2006.	Improved operational efficiency for HUD IT functions.	<ul style="list-style-type: none"> <li>Percentage of OCIO offices and program area IT units that have documented roles and responsibilities.</li> <li>Percentage of HUD staff that understand the roles and responsibilities of OCIO offices and program area IT units, as reported by an annual survey.</li> </ul>
1.4 Consolidate the IT functions across the Department by end of 4th quarter FY 2006.	Improved service delivery.	<ul style="list-style-type: none"> <li>Number of internal HUD organizations performing similar IT functions.</li> <li>Percentage of customers satisfied with the quality of IT services delivered by HUD, as reported by an annual survey.</li> </ul>
1.5 Recruit and retain a skilled IT workforce by end of 1st quarter FY 2007.	Improved service delivery.	<ul style="list-style-type: none"> <li>Percentage of new hires that leave HUD within the first year.</li> <li>Percentage of IT skill gaps that are filled.</li> <li>Percentage of hiring managers who are satisfied with the quality of new hires as indicated by an annual survey.</li> </ul>



### 3 HUD IT STRATEGY (Continued)

IT Objectives	Outcomes	Measures
<b>Goal 2: Allocation of Investments</b>		
2.1 Increase the level of technical standardization across HUD IT by the FY 2008 Select.	Improved ability for integration across HUD.	<ul style="list-style-type: none"> <li>▪ Percentage of Target EA Technical Reference Model (TRM) service standards with defined specifications and products.</li> <li>▪ Percentage of investments compliant with approved Target EA standards.</li> </ul>
2.2 Allocate increased Development Maintenance Enhancement (DME) funding share to support new capabilities/modernization as defined through segment architectures by the FY 2008 Select.	Increased business capabilities.	<ul style="list-style-type: none"> <li>▪ Number of transition activities that are funded.</li> <li>▪ Percentage of completed segments that have allocated funding toward implementing investments within the segment.</li> <li>▪ Achievement of Information Technology Investment Management (ITIM) Maturity Stage 4.</li> </ul>
2.3 Increase use of reusable components and shared services by FY 2008 Select.	Cost avoidance.	<ul style="list-style-type: none"> <li>▪ Percentage of IT initiatives with a defined strategy for component reuse and sharing.</li> <li>▪ Number of existing or new components identified for reuse.</li> </ul>
2.4 Increase use of Commercial Off-the-Shelf (COTS) or Government Off-the-Shelf (GOTS) solutions across HUD by FY 2008 Select.	Cost avoidance.	<ul style="list-style-type: none"> <li>▪ Percentage of IT initiatives that demonstrate use of, or consideration of, COTS/GOTS solutions.</li> </ul>
2.5 Improve IT program and project management capabilities by end of 4th quarter FY 2006.	Timely completion of IT projects with optimal utilization of resources.	<ul style="list-style-type: none"> <li>▪ Percentage of major IT projects whose cost and schedule overruns average less than 10%.</li> </ul>
<b>Goal 3: Mission Impact</b>		
3.1 Define, prioritize, and sequence segment architectures around core LOBs and functions by end of 2nd quarter FY 2005.	Improved alignment of IT to business needs.	<ul style="list-style-type: none"> <li>▪ Percentage of HUD's LOBs and core functions that have been prioritized and sequenced through the HUD EA Transition Plan.</li> </ul>

### 3 HUD IT STRATEGY (Continued)

IT Objectives	Outcomes	Measures
3.2 Integrate business and IT planning processes by end of 1st quarter FY 2006.	Improved alignment of HUD resources to strategic priorities.	<ul style="list-style-type: none"> <li>▪ Percentage of business planning activities with IT stakeholder involvement.</li> <li>▪ Percentage of IT planning activities with business stakeholder involvement.</li> </ul>
3.3 Develop trusted partnerships in support of program area and IT collaboration by end of 1st quarter FY 2006.	Improved internal communication.	<ul style="list-style-type: none"> <li>▪ Percentage of segments in progress that have Integrated Project Teams (IPT) comprised of business and IT stakeholders.</li> <li>▪ Percentage of IT and program area staff who are satisfied with the speed, accuracy, and type of information being shared, as reported in a quarterly survey.</li> </ul>
3.4 Develop and implement a comprehensive performance management framework by end of 1st quarter 2007.	Improved accountability.	<ul style="list-style-type: none"> <li>▪ Percentage of initiatives that have developed performance measures with a clear line of sight to business outcomes using the PRM framework.</li> </ul>
3.5 Collaboratively define business needs, functional requirements, and architectures with business and IT stakeholders by 3rd quarter FY 2007.	Improved service delivery.	<ul style="list-style-type: none"> <li>▪ Percentage of segments in progress with completed blueprints (segment artifacts).</li> <li>▪ Completion of EA Target</li> <li>▪ Number of mission critical systems with SA-CMM Level 2.</li> </ul>
Goal 4: Information Delivery		
4.1 Transition and implement an Enterprise IT Disaster Recovery Facility by end of 4 <sup>th</sup> quarter FY 2005.	HUD business operations are not severed by local or national emergencies.	<ul style="list-style-type: none"> <li>▪ Percentage of testing failures with resolutions.</li> </ul>
4.2 Secure and refresh HUD's infrastructure by 1st quarter 2006.	Improved IT capabilities.	<ul style="list-style-type: none"> <li>▪ Approved certification and accreditation on Lotus Notes and infrastructure general supports systems.</li> <li>▪ Percentage of installed desktops and notebooks that are upgraded annually.</li> </ul>

### 3 HUD IT STRATEGY (Continued)

IT Objectives	Outcomes	Measures
4.3 Develop and implement an enterprise security program that meets all security and privacy-related regulations, statutes, and Federal laws by 1st quarter FY 2006.	A secure HUD IT environment.	<ul style="list-style-type: none"> <li>▪ Percentage of major operational IT systems, including mission critical systems, that are properly secured (Certified and Accredited (C&amp;A) or otherwise authorized).</li> <li>▪ Percentage of program areas with trained Information Security Officers (ISOs).</li> <li>▪ Percentage of architectural layers with embedded security.</li> <li>▪ Percentage of HUD employees and contractors will have completed IT Security and Awareness Training</li> </ul>
4.4 Implement the HUD-wide data quality management practice by end of 4th quarter FY 2006.	Improved data management.	<ul style="list-style-type: none"> <li>▪ Percentage of data quality assessments completed on time.</li> </ul>
4.5 Develop OCIO and program area partnerships in developing E-Government solutions by 4th quarter FY 2006.	Improved service delivery.	<ul style="list-style-type: none"> <li>▪ Percentage of E-Government initiatives that involve OCIO and program area stakeholders.</li> <li>▪ Percentage of OCIO and program area staff who report that collaboration improved an E-Government initiative, as reported by an annual survey.</li> </ul>

## 4 NEXT STEPS

### 4 NEXT STEPS

In order for HUD's IT strategy to become operational, next steps include the development of an Implementation Action Plan and quarterly assessments to monitor progress against the strategy. The sections below further describe each activity.

#### 4.1 Implementation Action Plan

The Implementation Action Plan will be developed after approval of the IT Strategic Plan. The Implementation Action Plan will identify specific actions required to achieve HUD's IT objectives, and include responsible parties, timelines, and resources. Exhibit 4-1 below describes the components of the Implementation Action Plan.

#### 4.2 Quarterly Assessments of IT Strategic Plan

The Implementation Action Plan in conjunction with objective measures will serve as the basis for quarterly assessments that evaluate progress towards HUD's IT strategic goals and objectives. The result of the assessment is to be able to determine HUD's level of progress against its IT strategy. Assessment results, in addition to critical business drivers, determine whether development of new goals, objectives, actions or milestones are warranted. It is through this evaluation process that HUD determines what level of revisions to the IT Strategy are needed. Exhibit 4-2 below portrays an illustrative view of the assessment and revision cycle for the IT strategy.

**Exhibit 4-1 - Implementation Action Plan Components**

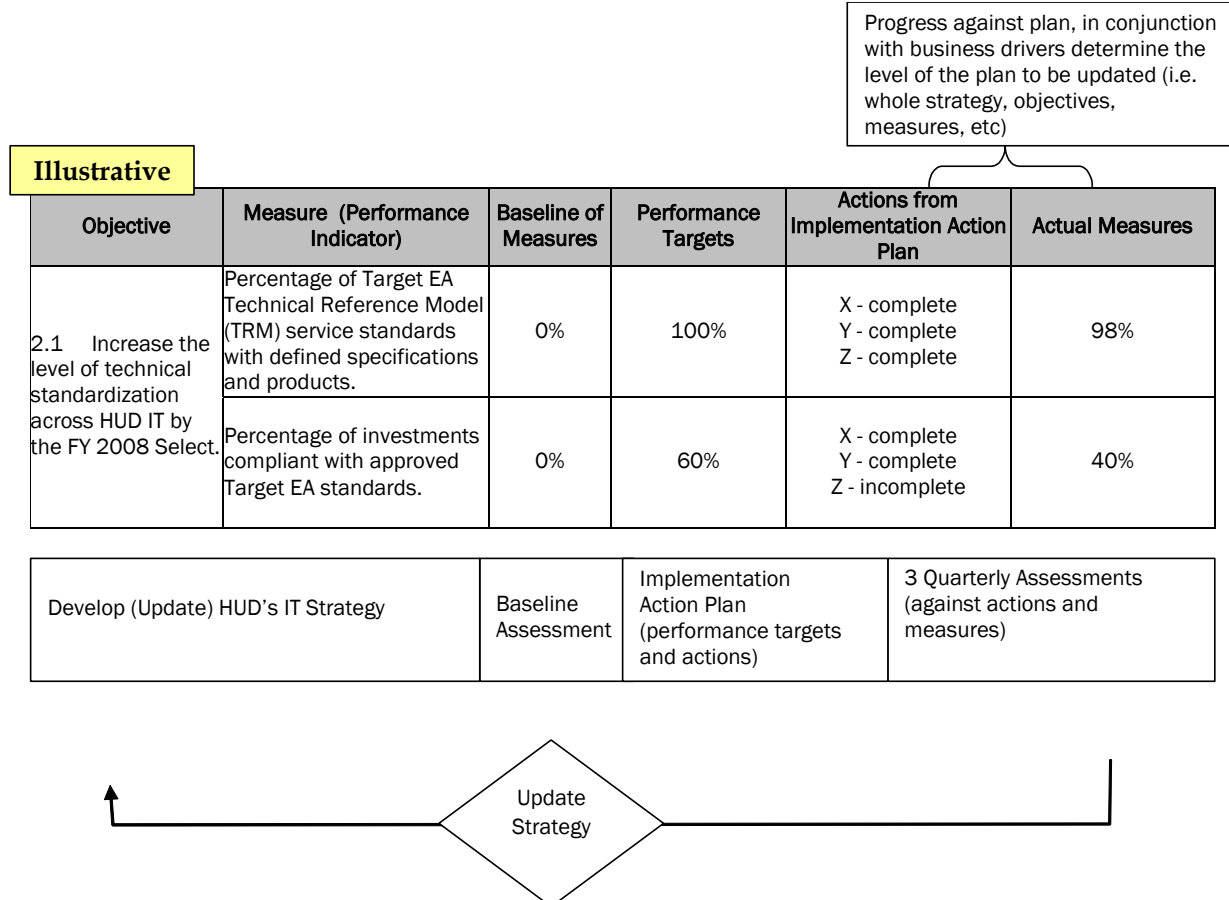
Action Plan Component	Description	Answers the Question
Objectives	These are the objectives identified in the HUD IT Strategic Plan.	How do we achieve our goals, and how do we know if we are making progress?
Actions	Definition of specific activities for reaching objectives	What are the specific actions we need to complete in order to achieve our objectives?
Milestones	Events or products that mark significant progress towards or completion of specific actions	When specific actions will be achieved?
Schedule	At the milestone level, schedule constraints are identified to accomplish milestone	What is the timeframe for the action?
Resources	Identifies the level of resources (staff or budget) required to accomplish an action.	How many people and how much money?

## 4 NEXT STEPS

### 4.3 Alignment with other HUD IT Plans

The IT Strategic Plan is one of several IT planning strategies for the Department. HUD's IT Strategic Plan identifies IT priorities that other HUD IT plans such as HUD's Target EA, SPR, EA Transition Plan, E-Government Strategic Plan, and IT Security Strategy will further decompose.

Exhibit 4.2 - Assessment And Revision Cycle For IT Strategic Planning



## APPENDIX A

### APPENDIX A:

#### FUTURE TRENDS AND EMERGING TECHNOLOGIES

Emerging technologies are changing the way various industries conduct their business. This appendix describes future government trends and emerging technologies that can assist HUD in realizing its IT strategy. Emerging technologies are described within the context of HUD's IT goals.

*Goal 1 - Consolidated and comprehensive departmental IT functions with clear organizational roles, responsibilities, and reporting structures, supported by a skilled workforce.*

Organizational workforce strategies to retain employees can greatly take advantage of emerging trends such as E-learning and mobile and wireless technology.

##### **E-learning**

Increased training opportunities for employees can lead to increased productivity and employee satisfaction. E-learning or online training has proved to be an emerging technology and trend that is convenient, cost-effective, and easy to use. The convenience of online training is self-paced learning, immediate access, and elimination of time used due to travel. E-learning can save organizations the costs of travel, classes, and instructors associated with traditional classroom training. In addition, the end user experiences of online training courses have advanced. Interfaces are easy to use and effective.

##### **Mobile and wireless technology**

Mobile and wireless technologies provide productivity improvements that are derived from less time spent commuting, fewer unproductive disturbances and increased flexibility in the scheduling of activities. Greater employee retention leads to reduced training costs, which also enhances productivity. HUD has already committed significant resources in this area, with the implementation of the HUD Virtual University

(HVU) and continued commitment to the PMA E-Training initiative.

**Knowledge Management** – Knowledge management is a process through which organizations retain value from their intellectual capital. It is a key strategy within succession planning to ensure that the skills, processes, and artifacts remain intact as workforce can dynamically change. Knowledge management technologies include information discovery, information retrieval, knowledge delivery, knowledge engineering, etc. It is important to note that successful knowledge management tools should have a core business strategy for defining and populating any such tool.

*Goal 2 - Well-managed and cost-effective IT investments that promote enterprise collaboration.*

This goal envisions an optimized IT portfolio. Two critical success factors of an optimized portfolio include well-managed IT investments and systems, and strategic allocation of funding across investments. In managing successful IT investments, the organization must have the tools in place to support IT project managers. In addition, this goal supports the reduction of IT maintenance costs in order to fund new capabilities. Standards development highly affects an organizations ability to reuse technology and to lessen maintenance costs.

##### **Project Management Collaboration Tools**

Benefits of project management collaboration tools include improved workflow and enhanced communication among team members. Online collaboration tools provide functionality such as project planning, workflow and process tracking, notifications and virtual communications, group meetings and conferencing, and document management. Document management is the foundation to an organization's collaboration and knowledge management.

##### **Decision Support Software**

Decision Support Software can greatly decrease the time required for data processing and facilitate problem identification and resolution. Optimized

## APPENDIX A (Continued)

portfolios take into account many constraints that strategically allocate dollars to investments. Constraints can be funding availability, mission criticality, legislative requirements, technical architecture compliance and many more. These constraints and variables become difficult to manage manually. Therefore, the use of decision support software is a technology opportunity to manage an organizational priorities and allocations against those priorities.

### Technology Standards

The benefits of creating technical standards at HUD are:

- to support the SOA through increased interoperability;
- increased reusability and enterprise-wide collaboration; and
- reduction of IT costs due to maintaining older obsolete technologies.

The vision is that as standards are developed, technologies will be seamlessly integrated. Standards development can include anything from Database Management Systems (DBMS) to infrastructure standards, to Internet protocol standards. A best practice of the government has been the identification of standards against the TRM Service Specifications.

### *Goal 3 - Relevant and robust IT that improves and increases the capabilities of HUD's core LOBs and functions.*

In order for HUD to be able to provide new or enhanced IT capabilities through services and solutions in support of the mission, HUD must invest in new capabilities. However, with a tight budget and disparate systems development across the Department, HUD's IT complexity is an impediment. Shared services and more cost-effective common solutions including standards must be developed. In order for HUD to provide leading edge, robust systems, HUD must develop solutions with greater interoperability and scalability. SOA, web services, and open source development are frameworks that support interoperable and scalable systems.

### Service Oriented Architecture (SOA)

SOA is a software architectural concept that defines the use of services to support business requirements. In an SOA, resources are made available to multiple stakeholders within the network as independent services that are accessed in a standardized way. In laymen's terms, HUD's SOA can be defined as build once, use often. Most definitions of SOA identify the use of Web services (using Simple Object Access Protocol (SOAP), Web Services Description Language (WSDL), and Universal Description, Discover, and Integration (UDDI)) in its implementation. However, it is possible to implement SOA using several emerging and existing technologies. Unlike traditional object-oriented architectures, SOAs consist of loosely joined, highly interoperable business services. Because these services are interoperable over different development technologies (such as Java and .NET), the software components and services are very reusable. SOA provides a methodology and framework for documenting enterprise capabilities and can support integration and consolidation activities. Commercial vendors are producing SOA products. Evaluation of COTS/GOTS purchases should be against the service oriented nature of those products.

- **Web Services** - Web Services are just one particular set of protocols for application-to-application communication. In other words, how to connect to services. Web services have become an emerging trend in the government today. Technologies that support web services and their definitions include:
  - **Extensible Markup Language (XML)**- XML is a W3C (World Wide Web Consortium standard) recommendation for creating special-purpose markup languages.
  - **HyperText Transfer Protocol (HTTP)** - HTTP is the primary method used to convey information on the World Wide Web. The original purpose was to provide a way to publish and receive HTML pages.
  - **SOAP** – SOAP is a protocol for exchanging messages between computer software, typically in the form of software components.

## APPENDIX A (Continued)

- **WSDL** – WSDL is an XML format published for describing Web services. WSDL describes the public interface to the web service. This is an XML-based service description on how to communicate using the web service, namely the protocol bindings and message formats required to interact with the web services listed in its directory.
- **UDDI** – UDDI is a one of the core web service standards. It is an XML-based registry for businesses worldwide to list them on the Internet. It is designed to be interrogated by SOAP messages and to provide access to WSDL documents describing the protocol bindings and message formats required to interact with the web services listed in its directory.
- **Service-oriented Analysis and Design (SOAD)** is an approach to software modeling and development specially designed for the service-oriented architectures. All of these design approaches promote information hiding, abstraction, and separation of concerns. SOAD adds innovations for service repositories, service orchestration (sequencing services and providing additional logic to process data), and the enterprise service bus (an emerging standard for integrating enterprise applications in an implementation-independent fashion). SOAD helps design, build, aggregate, and deploy applications as web services, built with SOAP, WSDL and UDDI technologies.

### Open Source

Open source or open-source software (OSS) is any computer software distributed under a special license, which allows users to change and/or share the code freely. Users have the right to modify and redistribute the software, as well as the right to package and sell the software. Industry leaders widely believe Open Source will greatly decrease software costs while increasing software capabilities and maturity.

### Commercial Off-the-Shelf / Government Off-the-Shelf (COTS/GOTS)

COTS/GOTS solutions provide a low cost option and should be more consistently used by HUD where appropriate.

- **COTS** – COTS are software or hardware products that are mass produced and readily available for sale to the general public in "as is" configuration, with little or no customization required for integration, thus facilitating customer infrastructure expansion and reducing costs. COTS products should be designed to be easily installed and to interoperate with existing system components such as applications and operating systems.
- **GOTS** – GOTS are software or hardware products that are typically developed by the technical staff of the government agency for which it is created. It is sometimes developed by an external entity, but with funding and specification from the agency. Because agencies can directly control all aspects of GOTS products, these are generally preferred for government purposes.

### *Goal 4 - Secure, rapid, and reliable data and information to our customers, citizens, and business partners.*

Goal 4 addresses various IT components such as security, infrastructure, and data that provide end users access to necessary data and information. Real-time infrastructure and increased security technologies have a large impact on delivery of services and information. Potential technologies to be leveraged are described below.

### Internet Protocol Version 6 (IPv6)

Ipv6 will increase the number of addresses and increase security of bytes over the Internet. IPv6 replaces and enhances IPv4 technology. This extension will accommodate more than enough addresses anticipated for the Internet and the number and type and number of devices that will need to connect. Other equally important improvements are: hierarchical addressing, native security, improved confidentiality and privacy,



## APPENDIX A (Continued)

integrated quality of service (QoS), auto-configuration, mobile computing support, multicast, anycast, and network route aggregation. IPv6 drawbacks include the fact that IPv6 implementation scope is large and will affect almost every computing and network service currently in use. Applications must be compatible with IPv6.

### Real-Time Enterprise Infrastructure (RTI)

Currently, applications are built on their own infrastructures, islands of functionality that cannot be easily shared in a distributed environment. A more flexible infrastructure paves the way for real-time access to information, improves decision-making, and creates a more agile business environment. Server, storage and network utilization is underused. Without the right technology and systems design, scaling, provisioning, and sharing resources or meeting the demands for service levels is difficult. Gartner, a leading provider of research and analysis on the global IT industry, predicts that RTI technologies will not become mainstream until the later half of the decade.<sup>2</sup>

### Network Security Convergence

Gartner predicts that 60 percent of firewall and intrusion detection functionality will be delivered via network security platforms by 2006. The major security vendors will create integrated suites of functionality, with unified management schemes, that address all aspects of securing an enterprise.

### Wider use of Wireless Local Area Networks (WLANs)

The Wi-Fi Protected Access (WPA) protocol will decrease security concerns, and increase encryption capabilities regarding wireless networks. As security risks decrease, wireless networks will begin to diminish the use wired networks.

### Instant Messaging (IM)

Gartner predicts that by 2005, 60 percent of interpersonal data messaging by enterprise and consumers will be real-time. As IM

frameworks were not originally created with enhanced security in mind, AOL, IBM, Microsoft, Sun and Yahoo have begun selling corporate IM services that include security and regulatory compliance features.

### Smart cards

A smart card resembles a credit card in size and shape. The inside of a smart card usually contains an embedded 8-bit microprocessor. The microprocessor on the smart card enhances security and provides tamper-proof storage of user and account identity. Smart cards are used in a wide variety of industries. Government uses include: computer security systems, wireless communication, and government identification.

### Biometrics

In IT, biometrics are used as enhanced security evaluations; it usually refers to technologies for authenticating human physiological characteristics such as fingerprints, eye retinas and irises, voice patterns, facial patterns, and hand measurements. Examples of behavioral characteristics which can be measured include signature recognition, gait recognition, speaker recognition and typing recognition.

### E-Authentication

E-Authentication is the process of electronically establishing user identities connecting to or using an information system. The PMA E-Authentication initiative will provide trusted and secure standards-based authentication architecture to support Federal E-Government applications and initiatives. This approach will provide a uniform process for establishing electronic identity and eliminate the need for each initiative to develop a redundant solution for the verification of identity and electronic signatures. Successful implementation of E-Authentication will produce numerous benefits for the public and the Federal government. Citizens and businesses will have a secure, easy-to-use and consistent method of proving identity to the government and will be spared the burden of having to keep track of multiple sets of registration information. Federal agencies will be able to reduce authentication system development and acquisition costs

<sup>2</sup> Farber, Dan (2004, April 22). *Top strategic technologies for 2005*. ZDNet. Retrieved from [http://techupdate.zdnet.com/techupdate/stories/main/top\\_10\\_technology\\_trends.html](http://techupdate.zdnet.com/techupdate/stories/main/top_10_technology_trends.html)

**APPENDIX A (Continued)**

and reallocate labor resources previously  
used to develop such systems.

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## APPENDIX B

### APPENDIX B: HUD ITSP PROCESS OVERVIEW

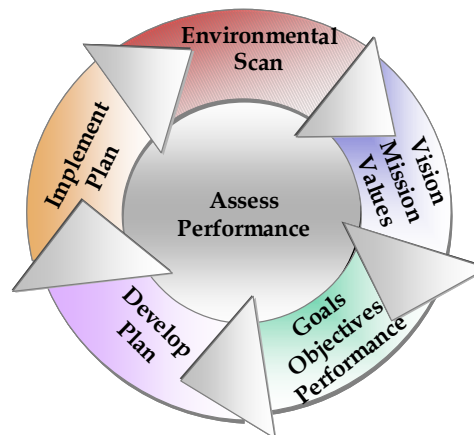
Several enhancements have been made to the HUD ITSP process to provide a more customer-focused perspective.

Enhancements include:

- **Increased alignment with Departmental strategies and priorities** - This IT Strategic Plan emphasizes alignment with the Department's mission and strategic goals as defined in the HUD Strategic Plan FY 2003 – FY 2008.
- **Increased IT stakeholder involvement.** - IT stakeholders were involved throughout the ITSP process. Further enhancement to the ITSP process is planned for the next iteration, which will directly involve both business and IT stakeholders. Annual environmental analysis identifies the need to revisit the strategy at the objective, goal, or vision and mission level. Not all revisions, for example if only at the objective level, constitute a completely new ITSP process with stakeholder involvement. Generally speaking, the next iteration of the ITSP process, including new business stakeholder input, occurs when the entire strategy is revisited, 3-5 years out. A business driver such as a new business strategic plan can prompt a new ITSP process. The December FY 2004 ITSP Process Guide contains details on targeted stakeholder groups.
- **Documented approach and guidance** - HUD's enhanced approach to IT strategic planning is documented in the HUD ITSP Process Guide. This guide will ensure HUD applies a consistent, industry best practice approach to the Department's future IT strategic planning efforts.

HUD's enhanced approach to IT strategic planning consists of six basic steps. This approach is depicted in Exhibit B-1 below. It is separated into two cycles: 1) the IT Strategy Development cycle, depicted in the outer ring of the exhibit, and 2) the Assessing Performance cycle, depicted in the inner ring of the exhibit below.

Exhibit B-1 - HUD's ITSP Process



HUD's IT strategic planning components are manifested in two primary work products: the IT Strategic Plan and the Implementation Action Plan. The IT Strategic Plan encompasses a long-term (3-5 year) vision and strategy for IT at HUD and includes:

- **Vision** – The ideal state for HUD IT
- **Mission** – The primary purpose of HUD IT
- **Values** – The underlying principles for accomplishing the mission
- **Goals** – Broad, long-term initiatives to achieve the vision
- **Objectives and Measures** – Short-term initiatives to realize goals and methods to measure progress and performance
- **Current IT Landscape** – HUD's current IT organization, management, systems, infrastructure, and other IT services.

The Implementation Action Plan is a separate document that complements the IT Strategic Plan. It provides specific actions and timelines for achieving the goals and objectives over a 1-2 year timeframe, including:

- **Objectives** – Short-term initiatives that tie the implementation action plan to HUD's long-term IT strategy
- **Actions** – Specific activities required to achieve the objectives
- **Milestones** – Events or products that mark significant progress or completion of actions
- **Schedule** – Time constraints for actions
- **Resources** – Staffing and funding required to complete actions

## APPENDIX C

### APPENDIX C: 2005 STRATEGY DEVELOPMENT

During 2005, the HUD ITSP process was accelerated to provide a common strategic direction for the myriad of ongoing and planned IT initiatives. The 2005 strategy development process significantly differs from the process described in the HUD ITSP Process Guide in two ways:

- Results of the 2004 HUD Strategic Workforce Analysis were used in lieu of business stakeholders' direct involvement in the strategy sessions. The analysis directly involved the Human Capital Steering Group, which consists of the General Deputy Assistant Secretaries, in identifying and defining the program areas' strategic priorities. In order to alleviate the burden of numerous existing committees on HUD's business stakeholders, the 2005 ITSP process leveraged existing documentation of HUD's strategic priorities. It is recommended that HUD review its existing executive committees to ensure business stakeholders have the ability to directly participate in development of HUD's top-level strategies.
- Strategy development sessions in 2005 were fewer in number and shorter in duration than prescribed by the HUD ITSP Process Guide. Three single sessions, in duration of three hours each, were used to develop the HUD IT vision and mission, values, and goals. Four single sessions, in duration of two hours each, were used to develop objectives for each of HUD's four IT goals.

#### Overview of Activities

The following sections provide an overview of the 2005 strategic sessions including a vision and mission, IT values, goals, and objectives. The session overviews provide additional context for which the strategy was developed under.

#### Vision and Mission Session

A three-hour session to develop mission and vision statements for HUD IT was held on January 12, 2005 with members of the OCIO, IT Security, and HUD PD&R. Participants

identified and discussed environmental factors that could shape HUD's IT strategy by conducting a SWOT analysis, which can be found in Appendix D.

#### Values Session

Participants of the vision and mission session convened again on January 24, 2005 to develop value statements. Participants discussed the implications of HUD's new IT vision and mission statements and used an exercise to determine the current and desired role of the IT community.

#### Goals Session

Results of the vision, mission and values session were used to develop materials for the goals session. During a three-hour session on January 27, 2005, participants developed long-term goals focused on six strategic themes that were developed in response to the Department's business priorities. These themes are provided below:

- **Reduction of IT Costs** – HUD, like many other departments and agencies, is continually facing the challenge of budget constraints. In direct response to this concern, the IT Strategic Plan focuses on reducing the costs of HUD IT through modernization, consolidation, and streamlined, collaborative development processes in order to free up money for development of new capabilities.
- **Security/Privacy/Confidentiality** – Protection of HUD's IT infrastructure and the information it carries impacts the trust of stakeholders in HUD. The large amount of personal and financial information processed by HUD emphasizes the need for security, privacy, and confidentiality to be a strategic priority for the Department's IT.
- **Improved Access to Information** – HUD maintains that providing more flexible, responsive and reliable access to information to HUD employees, business partners, and the citizen directly impacts the Department's ability to achieve its business outcomes. HUD identifies strategies in this plan to enhance the quality of data and its delivery method, including increased interoperability and standardization.

## APPENDIX C (Continued)

- **IT Organization** – IT management structures and processes are a critical element to a comprehensive, effective IT strategy. Increased focus on results, combined with a shrinking workforce and budget, delineates a need for HUD to improve its controls and oversight of IT investments and resources. Taking this into consideration, this plan emphasizes strategies focused on improving the effectiveness of HUD's IT management structures and processes.
- **IT Workforce** – One of the most significant challenges HUD will be facing over the next few years is the reduction of its workforce due to retirement. This plan focuses on strategies to prepare HUD for this challenge. The workforce predicament is addressed by strategies that enhance the skills and knowledge of the current workforce, and strategies for recruiting and retaining new IT staff.
- **Enhanced IT Support for Mission-facing Programs** – HUD maintains the perspective that IT is an enabler for achieving HUD's business outcomes, which are outlined in the HUD Strategic Plan FY 2003 – FY 2008. The strategies in the HUD IT Strategic Plan focus on increased IT support to HUD program areas' missions, core lines of business, and core functions to support the achievement of these business outcomes. This plan provides guidance to the program areas on aligning their IT strategies to the Department-level IT strategies.

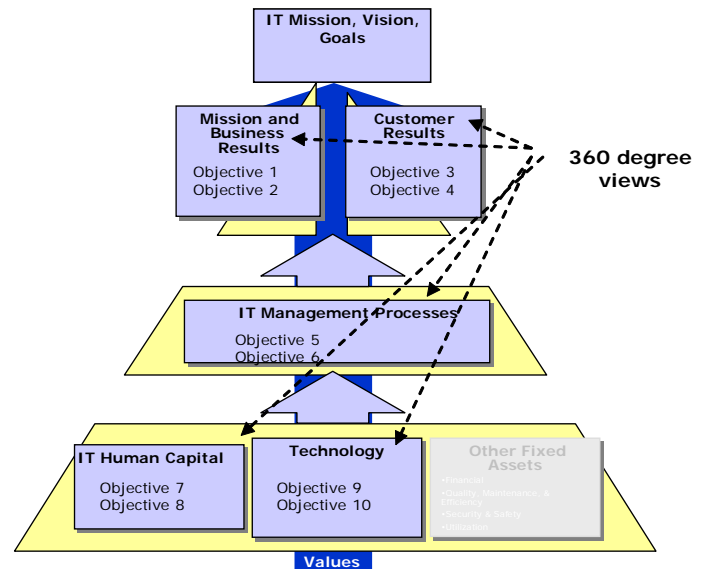
The group identified goal owners for each IT goal. Goal owners were responsible for ensuring the participation of key stakeholders in the objective-setting sessions for that particular goal. This method ensures that critical elements of each goal are addressed by appropriate HUD business or IT experts.

### Objectives Sessions

Goal owners, their representatives, and other key stakeholders (identified by the goal owners) convened in two-hour sessions during the week of January 31<sup>st</sup> to develop objectives for their designated goal. Each group refined the language of their goal and used a variation of FEA Performance Reference Model (PRM), which is depicted in

Exhibit C-1, to identify potential objectives. The PRM as used as a guiding framework to ensure a 360-degree perspective during development of the objectives.

**Exhibit C-1 Variation of the Performance Reference Model**



Once ideas for objectives were identified, ITSP staff applied the “SMART” principles (refer to Exhibit C-2 below) to develop objectives statements and associated measures.

**Exhibit C-2 - “SMART” principles**

Specific	Detailed, particular or focused; the reader should be able to identify what is to be achieved and accomplished
Measurable	Quantifiable; provides a standard for comparison; a specific result; you will know when you achieve it
Achievable	The objective is not beyond staff ability
Results-oriented	States a specific outcome
Time-specific	States the duration; when the objective will be achieved, a target date

## APPENDIX C (Continued)

### Validation

Stakeholder validation of the vision, mission, goals, and objectives was completed after the sessions through e-mail and weekly staff meetings of the Deputy CIO and Direct Reports. ITSP staff were responsible for ensuring stakeholder comments were incorporated into revisions.

### 2005 ITSP STAKEHOLDERS

The following section briefly describes the stakeholder groups who participated in developing the 2005 HUD IT Strategy.

### CIO

The CIO's primary responsibility at HUD is to advise the Secretary and other senior HUD managers on the strategic use of IT to support core business process and to achieve mission-critical goals. The CIO is the champion of the ITSP process and is ultimately responsible for development, implementation, and performance of the IT strategy.

### Deputy CIO

The Deputy CIO is responsible to the CIO for the operation of the OCIO. As a leading sponsor of the ITSP process, the Deputy CIO ensures that HUD's IT strategy considers innovative information technology solutions that support the Department's programs and mission.

### Direct Reports to the CIO

The Direct Reports to the CIO play roles in both development and implementation of the IT strategy. They had leading roles in defining the 2005 IT strategy. Direct Reports and their staff will ensure that the appropriate interfaces and handoffs occur within the OCIO to make the IT strategy a success, and that IT planning initiatives do not deviate from the IT strategy as parallel work streams occur. The offices of these direct reports are the:

- Office of Information Technology Operations;
- Office of Policy and E-Government
- Office of Systems Integration and Efficiency; and
- EA
- ITIM

### IT Security Staff

IT Security staff are responsible for the development and management of the HUD enterprise IT security program, including the training of staff. To ensure HUD's IT strategies are developed with security implications in mind, IT Security staff were involved throughout the 2005 process.

### Performance Management Staff

IT performance management staff are responsible for ensuring HUD's IT initiatives are linked to effective performance measures. This staff assisted in validating measures to assess the impact of the IT strategy.

### Program Areas and HUD Offices

Representation from the program areas and HUD offices provide additional insight into the Department's business priorities. A limited number of representatives from other areas of HUD, such as the Office for Policy Development and Research (PD&R), participated in the 2005 strategic planning activities.

### ITSP Staff

HUD ITSP staff have a foundational role in developing, institutionalizing, and executing the ITSP process and plans for HUD. This team is responsible for development of the strategic and implementation action plans, as well as the broader process.

## APPENDIX D

### APPENDIX D: STRENGTHS / WEAKNESSES/ OPPORTUNITIES / THREATS (SWOT) ANALYSIS

During the vision and mission session, participants went through an activity that defined HUD's SWOT. The weaknesses and opportunities helped shape the strategic themes and goals of the IT strategy.

Strengths	
<ul style="list-style-type: none"> <li>▪ Expertise of core leadership</li> <li>▪ Relatively mature ITIM process</li> <li>▪ Started on and committed to a target EA</li> <li>▪ Standardized technology across the Department</li> <li>▪ Responsive to legislative and regulatory mandates, IG, GAO, etc.</li> <li>▪ Compliant with privacy requirements</li> <li>▪ Management of the Paperwork Reduction program</li> <li>▪ Progress of the E-government program</li> <li>▪ Centralized IT budget</li> <li>▪ Highly reliable, virus-free desktops and network</li> <li>▪ SEAT management</li> <li>▪ PMA</li> </ul>	
Weaknesses	
<ul style="list-style-type: none"> <li>▪ Standardization may lead to lack of flexibility and innovation</li> <li>▪ Weaknesses in IT security and IT operations</li> <li>▪ Lacking the right staff/resources assigned to the Paperwork Reduction program within the program areas</li> <li>▪ Lack of a departmental strategic planning office</li> <li>▪ Partner interoperability</li> <li>▪ Procedural issues: lack of SOPs and low-level CMM</li> <li>▪ Skill gaps</li> <li>▪ Organizational gaps (e.g. no systems engineering component)</li> <li>▪ Lack of program office control due to centralized IT funding</li> <li>▪ Lack of prioritization of initiatives</li> <li>▪ Lack of succession planning to manage aging IT workforce</li> </ul>	<ul style="list-style-type: none"> <li>▪ Workload/work balance</li> <li>▪ Acquisition cycle is too lengthy</li> <li>▪ No design standards</li> <li>▪ Insufficient IT IRM policy/program</li> <li>▪ Unclear organizational roles &amp; responsibilities</li> <li>▪ HUD website function resides outside of OCIO</li> <li>▪ Systems development functions reside outside of OCIO</li> <li>▪ Redundant/conflicting IT organizations in other areas (program areas)</li> <li>▪ Poor data &amp; information quality in major systems</li> <li>▪ Lack of involvement of business leaders within IT</li> <li>▪ Too many boards and committees</li> <li>▪ Lack of communication between IT and the program areas</li> <li>▪ HITS contract</li> </ul>
Opportunities	External Threats
<ul style="list-style-type: none"> <li>▪ Increasing score on PMA scorecard</li> <li>▪ Responding to GAO and I.G. findings</li> <li>▪ Implementing the Lifecycle Management Framework</li> <li>▪ Implementing the target EA</li> <li>▪ Implementing enterprise solutions and acquiring their sponsorship</li> <li>▪ Hiring change management specialists/agents</li> <li>▪ A new CIO</li> <li>▪ OCIO's independence within the acquisition process</li> <li>▪ Implementing shared services</li> <li>▪ Assisting areas that lack automation (i.e. PIH)</li> <li>▪ Establishing customer service agreements</li> </ul>	<ul style="list-style-type: none"> <li>▪ External time pressures</li> <li>▪ Budgetary constraints</li> <li>▪ Procurement process</li> <li>▪ HR process</li> <li>▪ PMA scorecard</li> <li>▪ GAO and IG findings increase workload and impact priorities</li> <li>▪ Constant, often incomplete internal reorganizations</li> <li>▪ Political change</li> </ul>

## APPENDIX E

### APPENDIX E: CURRENT IT LANDSCAPE

HUD budgets an estimated \$300 million a year to support an IT systems portfolio consists of approximately 200 systems. The current IT landscape at HUD can be described through the following categories: IT Organizational Landscape, IT Landscape, and IT Management Landscape.

#### IT ORGANIZATIONAL LANDSCAPE

HUD is a large, centralized agency consisting of headquarters and field offices that house 11 program areas. Although HUD's OCIO is centralized, some of the program areas also have IT capabilities within their individual offices. In addition, HUD's business is shared across several hundreds of business partners. An inherent challenge becomes the control and oversight of these business partners.

Similar to many agencies across the Federal government, HUD is realizing the effects of a downsized Federal staff. HUD faces a serious shortage of human capital in upcoming years as many experienced senior staff and executives, who make up a large percentage of total HUD personnel, retire. This leaves HUD in an urgent need to enforce workforce and succession planning so that capabilities of skilled IT staff are not lost.

#### IT LANDSCAPE

As described in the section above, HUD collaborates and depends on hundreds of business partners to execute various functions of their mission. IT challenges of this model include elimination of stove-piped, redundant systems and processes; data integrity; and access to information. There is a need to increase interoperability standardization and improve data quality.

HUD's IT organizational structure, defined above, provides for unique program area support to the mission; however, a by-product is increased complexity and disparity of systems and IT across the Department. Budget constraints and steady-state maintenance are ongoing impediments to IT modernization. HUD's IT is in need of

modernization to reduce expensive maintenance costs of legacy systems and duplicative systems. In addition, automation of processes across program areas are varied. HUD has initiated and/or completed several successful systems transformation efforts.

**HUD Financial Management Segment Architecture** - Weaknesses within HUD's financial management systems have been a long-standing challenge for the Department. While some progress has been made, both GAO and the HUD OIG have reported extensive weaknesses related to HUD's financial management systems. In recent audit reports, the HUD OIG noted that completion of the development of adequate financial management systems is the most critical need faced by HUD in improving its financial management control environment. Responsive financial management systems are critical to HUD's ability to meet its mission, deliver services, and establish management control over its operations. The HUD Integrated Financial Management Improvement Project (HIFMIP) is addressing these issues, including competitively selecting and migrating to an approved Financial Management Center of Excellence (COE).

**HUD HR Segment Architecture** – HUD Integrated Human Resources and Training System (HIHRTS) re-engineered HR and training processes. Since HIHRTS initial implementation, OMB has advanced the Human Resources Management (HRM) LOB that delivers products and services via the HRM Centers of Excellence. To align with the Federal Human Resources Line-of-Business architecture initiative, the Human Resource Management (HRM) Program reviewed the U.S. Department of Treasury's HR Connect cross-servicing solution. Based on this review, HUD has begun moving to Treasury's solution. Implementation is scheduled to be completed in June 2005.

**Grants Segment Architecture** – A Grants Segment Architecture was initiated to provide an enterprise-wide solution for grants management at HUD and will be addressed in a two-phased approach. First, HUD is putting in place an interim solution called the Grants Interface Management Systems (GIMS) that



## APPENDIX E (Continued)

will allow FY 2005 electronic applications received via Grants.gov to be distributed within HUD. Second, the HUD eGrants Program Manager, in concert with the Director of the Office of Departmental Grants Management and Oversight, is developing the vision for the HUD's eGrants enterprise solution. The HUD eGrants enterprise solution will provide full end-to-end grants management on an enterprise level as the title indicates. The HUD eGrants solution will accommodate a broad portfolio of grant programs into one solution; consolidate grants business processes to minimize functional overlap and redundant data. Additionally, the system will migrate from and delete redundant legacy systems and consolidate disparate systems. Grants Management is 26.86% (2nd highest) of all cross-cutting segment investments at HUD and the enterprise solution will evolve OMB 300 Business Cases to include alignment statements, strategic investment and optimize business processes with continuous investment in reengineering. The enterprise class solution will use enterprise class technologies (J2EE), structured development methodologies such as Rational Unified Process, will promote sharing of functional components and align with the FEA. When full system capability is reached, HUD eGrants will reduce the costs of maintaining grant legacy systems (currently estimated at \$24 million per year) and will improve the effectiveness of HUD programs by providing better oversight and management of programs managed by the Department within each program office and across the agency utilizing a common data model for HUD which is consistent with the Grants.gov and GM LoB adopted global schema. The HUD eGrants enterprise solution will also take into account business rules for program financial management and payment request approvals. This will allow the Department to align the grants management functions with the HIFMIP project within the Department. Ultimately this alignment will permit HUD to achieve cost savings by phasing out the PAS and LOCCS systems and replacing the functionality with the financial business rule controls in the grants management system. All grants management capabilities and business processes will be housed within HUD's eGrants management

EA, grants management system(s), and future state Grants Management LOB, as adopted by the Department.

**The Single Family Housing (SFH) Segment Architecture** - The Single Family Housing (SFH) Segment Architecture (blueprint) includes initiative modernizations such as initiatives such as the Federal Housing Administration (FHA) Connection and the Credit Alert Interactive Voice Response System (CAIVRS).

- FHA Connection is an Internet-based system that allows FHA approved lenders to originating and servicing FHA loans. FHAC processed 1.4 million FHA loans last year with a total value of over \$180 billion. There are currently 9,000 lenders and 90,000 FHAC users. The FHAC processes over one million applications for mortgage insurance
- CAIVRS is a HUD-initiated Federal government interagency shared database used to alert participating Federal lending agencies when an applicant has a Federal lien judgment or a Federal loan which is currently in default or foreclosure. CAIVRS is widely recognized by financial institutions as one of less than a handful of authoritative sources for Federal default loan information. CAIVRS allows HUD and participating agencies to better monitor their credit programs and to reduce the credit extended to individuals with outstanding delinquencies on Federal debt. CAIVRS reduces, by almost 100 percent, the risk of endorsing a mortgage for FHA insurance without knowledge of previous delinquencies or defaults in Federal programs.

**The Rental Housing Assistance (RHA) segment architecture** covers PIH and the Office of Multifamily Housing. The RHA initial blueprint was completed in 2004. Business process reengineering recommendations are currently in progress.

**HUD Information Technology Service (HITS) Contract** - HITS provides a wide range of

## APPENDIX E (Continued)

Information Technology outsourcing services, including the upgrade, consolidation, and support of the Department's nationwide information system. HITS is responsible for acquisition, installation, operation and maintenance for the HUD's infrastructure, including the procurement of all necessary computing hardware and software. HITS is designed to save the Department money through a consolidated and modernized IT infrastructure.

### HUD's E-Government Program

Emerging technologies and the principles of the PMA are presenting opportunities for HUD to improve business processes that directly support its mission and transform HUD from a compliance-centered to a performance-focused organization. Using HUD's E-Government-enabling solutions, citizens and our business partners can transact on-line or obtain current information, including:

- Searching for HUD, USDA, and VA homes on HomeSales.gov.
- Determining eligibility/status for an FHA refund.
- Locating local, privately-owned subsidized apartments.
- Originating and servicing FHA loans.
- Obtaining Income Limits and Section 8 Fair Market Rents information.
- Submitting Fair Housing discrimination claims and obtaining housing and mortgage lending discrimination information.
- Obtaining information for individual public housing agencies.
- Identifying HUD approved lenders, appraisers, Housing Counselors.
- Identify individuals with defaulted or delinquent Federal loans or debt.

HUD defines its E-Government (E-Gov) program as more than just implementing web-based technologies and applications. E-Gov is conducting business electronically, safely, efficiently, and effectively and in a manner that is accessible to everyone who needs access at any time of the day.

HUD's collaboration on various Presidential initiatives and Lines of Business (LOB) is resulting in improved and expanded delivery

of information and services to citizens, businesses, and state and local governments, as well as internally to the Department. HUD currently participates on 17 of the 24 Presidential Initiatives, provides results as indicated in Exhibit E-1.

### Exhibit E-1 - HUD's Contributions to Presidential Priority Initiatives

Government to Citizen (G2C)
<ul style="list-style-type: none"><li>▪ <b>GovBenefits.gov</b> - HUD is contributing program and eligibility information for programs.</li></ul>
<ul style="list-style-type: none"><li>▪ <b>USA Services</b> - HUD has entered into a Working Agreement with the USA Services E-Government Initiative, led by the U.S. General Services Administration (GSA), which is providing services for responding to phone calls and e-mails improperly sent to HUD.</li></ul>
<ul style="list-style-type: none"><li>▪ <b>E-Loans</b> - HUD's web-enabled Credit Alert Interactive Voice Response System (CAIVRS) is providing the centralized sharing of default data across agencies to improve risk management for Federal credit programs.</li></ul>
Government to Government (G2G)
<ul style="list-style-type: none"><li>▪ <b>Geospatial One-Stop</b> - HUD contributes datasets for inclusion in Federal-wide geographic data depository</li></ul>
<ul style="list-style-type: none"><li>▪ <b>Disaster Management</b> - HUD contributes towards this initiative.</li></ul>
<ul style="list-style-type: none"><li>▪ <b>Grants.gov</b> - HUD's available FY 2004 funding opportunities have been placed on Grants.gov/FIND. HUD intends to have the majority of its grant application forms for the Grants.gov/APPLY site available in FY 2005.</li></ul>
Government to Business (G2B)
<ul style="list-style-type: none"><li>▪ <b>E-Rulemaking</b> - HUD staff continue to work with EPA to finalize the system requirements for the implementation of the Federal Docket Management System (FDMS), which is expected to begin in early 2005.</li><li>▪ <b>Business Gateway</b> - HUD staff is populating the Business Gateway catalog of federal forms with HUDClips forms metadata.</li></ul>
Contributions to Internal Efficiency and Effectiveness (IEE) Initiatives:
<ul style="list-style-type: none"><li>▪ Recruitment One-Stop</li><li>▪ E-Training</li><li>▪ Enterprise HR Integration</li><li>▪ E-Payroll</li><li>▪ E-Travel</li><li>▪ Integrated Acquisition Environment</li><li>▪ E-Records Management</li><li>▪ E-Clearance</li><li>▪ E-Authentication Management</li><li>▪ E-Clearance</li><li>▪ E-Authentication</li></ul>

HUD is also participating in four Federal LOBs including:

## APPENDIX E (Continued)

- Grants Management
- Financial Management
- Human Resources Management
- Federal Health Architecture

The goal of the LOBs is to identify opportunities to reduce the cost of government and improve services to citizens through business performance improvements.

Cross-agency teams analyzed opportunities for integration and consolidation in the areas of Financial Management, Human Resources Management, and Grants Management. They have recommended the establishment of government-wide service providers in the areas of Financial Management and Human Resources Management. The Grants Management team is developing plans for the consolidation of Grants Management activities across the government. The Federal Health Architecture is focused on improving the efficiency, standardization, reliability, and availability of comprehensive health information solutions through a common framework.

### IT MANAGEMENT LANDSCAPE

HUD has made or initiated a number of improvements to the management of its IT portfolio, as evidenced by the IT Capital Planning program, E-Government program, and EA program.

However, HUD recognizes that more work needs to be done to overcome delays

associated with contract awards in support of IT, its IT security program, and the PMA scorecard.

HUD has over 200 information systems, which execute overlapping business and information management processes, and rely on various technologies that are expensive to maintain. HUD has adopted a

service-oriented and component-based approach to architecture to reduce cost and streamline operations. This approach is consistent with government and industry best practice and enables HUD to “build once, use often.” HUD must optimize its current investments to be able to maintain steady-state projects while introducing new capabilities. HUD’s target management and IT framework for architecture and investments is the IT Lifecycle Framework. The HUD IT Lifecycle Framework consists of three overarching phases: Architecture, Investment, and Implementation as shown in Exhibit E-2 below. The IT Lifecycle Framework is a conceptual lifecycle for all IT initiatives carried out by the Department. First, the initiative is defined through architecture. Then the activity is funded through investment, and subsequently implemented.

**Exhibit E-2 – HUD IT Lifecycle Framework**

Architecture	Investment	Implementation
<ul style="list-style-type: none"><li>• Develop and maintain EA</li><li>• Review, reconcile and approve segment architecture for HUD’s core lines of business and common IT services</li></ul>	<ul style="list-style-type: none"><li>• Select IT initiatives to define HUD’s IT investment portfolio</li><li>• Control IT investments</li><li>• Evaluate IT investments</li></ul>	<ul style="list-style-type: none"><li>• Develop and maintain segment architecture</li><li>• Develop IT program management plan</li><li>• Execute IT projects</li></ul>

### Architecture

The cornerstone of the lifecycle effort is HUD’s EA program. The EA program consists of “As-Is” and “To-Be” states. HUD’s EA program released its “To-Be” or target architecture January 2005. HUD EA artifacts support a conceptual architecture including IT principles and business drivers. HUD’s “As-Is” was defined through reference model mappings and artifacts that are aligned to the FEA. HUD is currently in the process of releasing its EA Transition Plan, which provides the roadmap to realize its target. The EA practice is guiding

## APPENDIX E (Continued)

HUD's short and long-term investment decisions. All architecture efforts in the IT Lifecycle Framework are focused on target or "To-Be" states.

HUD's EA governance is chartered through the Technology Investment Board Executive Committee (TIBEC) and the Technology Investment Board Working Group (TIBWG). Currently, a draft charter has been developed to support an Architecture Review Board (ARB). In addition, the Data Control Board has a role in approval of data architectures and other data quality efforts within OCIO.

### Investment

HUD's ITIM program is responsible for the Investment phase of the lifecycle. The ITIM lifecycle consists of three major phases: Select, Control, and Evaluate. The Select phase consists of guidance to project managers, business case development, scoring and selection of investments, including the allocation of funds to those investments. The Control phase consists of monitoring the portfolio to ensure investment health (projects are on-time, on-schedule, and are meeting performance measures in addition to other factors). The integration of the EA and ITIM program ensures that an EA review becomes the pre-requisite for every IT investment. The Evaluate phase consists of post-implementation reviews (PIRs). PIRs are conducted on completed projects that no longer request funding.

HUD governs the Investment phase with the support and charter TIBEC and TIBWG. These groups make investment decisions with analysis and recommendations provided by the ITIM and EA staff.

### Implementation

The Implementation phase of the lifecycle ensures that as investments are being implemented, they are being viewed in light of how they support core HUD LOB and functions. Therefore, segment architectures (or EA blueprints) will define the methodology and requirements for investments through prioritized LOBs, and functions. Segment blueprints (segment architectures) for HUD's major business areas also help guide the E-Government transformation.

Segments are completed by IPTs including business, IT, and EA stakeholders. A segment architecture is information technology architecture for an individual LOB, function, or a core IT service. LOBs and functions are defined within HUD's BRM and core IT services include enterprise IT opportunities such as technical standards development. Segments benefits include:

- improved requirements using a business driven model;
- identification of new capabilities;
- system modernizations;
- reduction of inefficiencies;
- reduction of diverse and redundant technology; and
- increased technical standardization and interoperability.

Through segments, IT investment business cases are created, refined, and implemented. According to HUD's PMA Report of 2004, HUD redirected tasks representing \$5,586,000 to be compliant with HUD's Single Family Mortgage Insurance and Rental Housing Assistance blueprints, as a result of identifying and halting redundant system development efforts.

## APPENDIX F

### APPENDIX F: EXTERNAL DRIVERS

There are several external factors that drive the HUD's strategic use of information technology. The following sections provide descriptions of these various external factors.

**Government Performance Results Act (GPRA)**  
(Public Law 103-62) – Under GPRA, every major Federal agency must now ask itself some basic questions: What is our mission? What are our goals and how will we achieve them? How can we measure our performance? How will we use that information to make improvements? GPRA forces a shift in the focus of Federal agencies—away from such traditional concerns as staffing and activity levels and toward a single overriding issue: results. GPRA requires agencies to set goals, measure performance, and report on their accomplishments.

#### GAO Guidelines

The Agency must have a documented process to:

- Develop IT goals in support of agency needs;
- Measure progress against these goals;
- Assign roles and responsibilities for achieving these goals.

#### Government Paper Elimination Act (GPEA)

GPEA specifically instructs that by October 21, 2003, Federal agencies must:

- Give the public the option to submit information electronically;
- Maintain or disclose information to the public using electronic means; and
- Use electronic authentication methods to verify the identity of the sender and the integrity of electronic content.

The law directs agencies to engage in the “acquisition and use of information technology, including alternative information technologies that provide for electronic submission, maintenance, or disclosure of information as a substitute for paper, and for the use and acceptance of electronic signatures.”

### President's Management Agenda

The PMA was established in FY 2001 as a starting point for management reform. The agenda contains five government-wide and nine agency-specific goals to improve Federal management, listed below. HUD participates in the five government-wide and two agency-specific initiatives identified in Exhibit D-1 and reports its results in the PMA scorecard. These focus areas contributed to development of the HUD IT Strategic Plan.

#### Exhibit D-1 – HUD's PMA Initiatives

Government-Wide PMA Initiatives
<ul style="list-style-type: none"><li>▪ Strategic Management of Human Capital</li><li>▪ Competitive Sourcing</li><li>▪ Improved Financial Performance</li><li>▪ Expanded Electronic Government</li><li>▪ Budget and Performance Integration</li></ul>
Agency-Specific PMA Initiatives
<ul style="list-style-type: none"><li>▪ HUD Management and Performance<ul style="list-style-type: none"><li>○ Improving Housing quality and Intermediary Performance</li><li>○ Reducing Overpaid Rental Assistance</li><li>○ Mitigating Federal Housing Authority (FHA) Risk</li><li>○ Improving the Consolidated Community Planning Process</li><li>○ Strengthening Acquisitions Management Information</li></ul></li><li>▪ Faith-based and Community Initiative</li></ul>

### Clinger Cohen Act of 1996

Formerly known as the Information Technology Management Reform Act (ITMRA), the Clinger-Cohen Act of 1996 provides the opportunity to significantly improve the way the Federal government acquires, manages, and uses information technology. Agencies now have the clear authority and responsibility to make measurable improvements in mission performance and service delivery to the public through the strategic application of information technology. HUD has met the specific mandates of the act to:

- establish and fill a CIO position with defined duties and responsibilities;
- design and implement capital planning and investment controls;
- use information technology as a strategic enabler of agency and departmental missions and business objectives,

## APPENDIX F (Continued)

implementing information technology-related actions to enhance performance and results-based management; and

- develop, maintain, and facilitate the implementation of sound and integrated information technology architecture.

### **Section 508, Rehabilitation Act of 1973**

As amended, Section 508 of the Rehabilitation Act of 1973 requires Federal agencies to ensure that their electronic and information technologies provide people with disabilities access to information and data comparable to that of people without disabilities. HUD's website ([www.hud.gov](http://www.hud.gov)) has incorporated many of the access provision guidelines developed by the Web Accessibility Initiative of the World Wide Web Consortium, such as verbal tags and frames enabling screen readers to "read" both text and graphical information. HUD has also included a "People with Disabilities" section on the website detailing Federal resources and Fair Housing Laws listing guidelines, contact points, and rights for citizens living with disabilities.

### **The Privacy Act of 1974**

The Privacy Act of 1974 provides specific guidance to Federal agencies on the control and release of appropriate records. This act, known as a "code of fair information practices," attempts to regulate the collection, maintenance, use, and dissemination of personal information by Federal Executive branch agencies. HUD gathers information on employees, individuals applying for HUD programs, business partners, contractors and clients. HUD's Privacy Act Program follows the guidelines set in the Privacy Act of 1974. HUD has a designated Privacy Officer to answer citizens' requests for documentation and data available under the Privacy Act.

### **Electronic Signature in Global National Commerce Act (ESIGN)**

The Electronic Signatures in Global National Commerce Act of 2000 (ESIGN) declares the validity of electronic signatures for interstate and international commerce; prohibits denying the legal effect of certain electronic documents and transactions signed by an electronic signature; clarifies broad circumstances in which an electronic record

satisfies any statute or regulation that mandates a record in writing; requires inquiries into domestic and foreign impediments to commerce in electronic signature products and services; and embraces all technologies. The Act is also known as the "Millennium Digital Commerce Act" and the "E-SIGN Bill".

### **E-Government Act of 2002**

The E-Government Act of 2002 aims to enhance the management and promotion of Electronic Government services and processes by establishing a Federal Chief Information Officer within the Office of Management and Budget. By establishing a broad framework of measures that require using Internet-based information technology, citizen access to government information and services is enhanced. This Act extends and consolidates previous acts such as GPEA.

### **Federal Enterprise Architecture (FEA)**

The FEA is a business and performance-based framework to support cross-agency collaboration, transformation, and government-wide improvement. It provides OMB and the Federal agencies with a new way of describing, analyzing, and improving the Federal Government and its ability to serve the citizen. The FEA is being constructed through a collection of interrelated "reference models" designed to facilitate cross-agency analysis and the identification of duplicative investments, gaps, and opportunities for collaboration within and across Federal Agencies.

### **Paperwork Reduction Act of 1980**

The Paperwork Reduction Act intends to have Federal agencies become more responsible and publicly accountable for reducing the burden of Federal paperwork on the public, and for other purposes. The Act requires Federal agencies to establish a process, independent of program responsibility, to evaluate proposed collections of information and manage information resources to reduce information collection burdens on the public. Furthermore, agencies must ensure that the public has timely and equitable access to information products and services.

## APPENDIX G

### APPENDIX G GLOSSARY

Term	Acronym	Definition
Action		Specific activities that support HUD's IT strategic objectives, as defined in the HUD IT Strategic Plan.
Business Architecture		A function-driven framework for describing HUD's business operations, independent of the offices that perform them. It details HUD's LOBs and the underlying business functions that support their execution.
Business Area		The top layer in the BRM taxonomy. A high-level grouping of HUD operations relating to the purpose of HUD (Services for Citizens), the mechanisms HUD uses to achieve its purpose (Mode of Delivery), the support functions necessary to conduct HUD operations (Support Delivery of Services), and the resource management or "back office" functions that support all areas of HUD's business (Management of Government Resources).
Business Reference Model	BRM	An organized, hierarchical construct for describing a business organization from a functional perspective. The FEA BRM is the first layer of the FEA and it is the main viewpoint for the analysis of data, service components and technology. The HUD BRM provides a Department-wide taxonomy for understanding HUD's business operations, organized hierarchically. It is a key tool used in the standardization of business functions and terminology Department-wide.
Certification and Accreditation	C&A	Mainly the process by which an application or system meets security standards of the Department.
Commercial Off-the-Shelf	COTS	Software or hardware products that are mass produced and readily available for sale to the general public in "as is" configuration, with little or no customization required for integration, thus facilitating customer infrastructure expansion and reducing costs. COTS products are designed to be easily installed and to interoperate with existing system components such as applications and operating systems.
Component		The second layer in the Service Component Reference Model (SRM) taxonomy, below Service Domain. A self-contained business process or service with predetermined functionality or capability that may be exposed through a business or technology interface. May also be referred to as a service component.
Continuity of Operations	COOP	A plan outlining the activities associated with the identification of critical systems and processes, and the planning and preparation required to ensure that these systems and processes will be available in the event of a catastrophic event.
Crosscutting		Applying to or spanning more than one. The terms "crosscutting" or "cross-cut" apply to several aspects of the architecture. For example, as defined in the HUD Strategic Plan, a crosscutting goal is one that affects all HUD program areas. Within the Business Architecture, a crosscutting business function is one that serves multiple LOBs. A crosscutting Segment Architecture is one that addresses the needs of other segments (i.e. the Line of Business segments).
Customer		Any individual or organization that uses a service or product provided by HUD.

## APPENDIX G (Continued)

Term	Acronym	Definition
Data		Information, especially facts or numbers, collected for examination and analysis, and used to help inform decision-making.
Database Management System	DBMS	A database management system, a software system that facilitates the creation and maintenance and use of an electronic database.
EA Transition Plan		A roadmap or strategy for migrating or transitioning an organization from its Baseline EA to its Target EA.
Electronic Government	E-Gov	The act of using improved Internet-based technology to make it easy for citizens and businesses to interact with the government, reduce operational and service delivery costs, and streamline citizen-to-government communications. Electronic government activities and services fall into four categories: government to government (G2G), government to business (G2B), government to citizen (G2C), and government to employee (G2E).
Electronic Government Initiative	E-Gov Initiative	A specifically labeled set of activities organized to achieve a set of objectives in delivering government services through the application of IT. In U.S. Federal Government usage, the term has specific application to a group of initiatives, spanning multiple Federal agencies, identified as part of the President's Management Agenda. These initiatives are intended to eliminate redundant systems and significantly improve the government's quality of customer service for citizens and businesses.
Enterprise Architecture	EA	A planning framework that describes the current and desired relationships among an organization's business, data, applications, technology, security, and performance environments. EA is a tool that helps identify opportunities for business transformation and allows organizations to align their IT strategy and initiatives with their business mission and processes. In HUD's environment, the EA is the cornerstone of the IT Life Cycle Framework. It links the Department's Strategic Plan and IT Strategic Plan with IT initiatives and provides a vision for future investment.
Federal Enterprise Architecture	FEA	A management framework comprising a series of interrelated reference models focusing on business, performance, application-capabilities, technologies and standards, and data and information. FEA reference models collectively facilitate cross-agency analysis and the identification of duplicative initiatives, gaps, and opportunities for collaboration within and across Federal agencies. Developed and managed by the FEA Program Management Office within the Office of Management and Budget, the FEA was established to transform the Federal Government to a citizen-centered, results-oriented, and market-based organization.
Function (or Business Function)		The third layer in the BRM taxonomy, below Line of Business (LOB). A high-level aggregation of related business processes and activities. A function represents the tactical view of a business, i.e., how things get done.
Goal		The purpose toward which an endeavor is directed. Within the context of HUD's strategic planning, a goal is a higher-level desired strategic outcome supported by multiple objectives. See Objective.



## APPENDIX G (Continued)

Term	Acronym	Definition
Government Off-the-Shelf	GOTS	Software or hardware products that are typically developed by the technical staff of the government agency for which it is created. It is sometimes developed by an external entity, but with funding and specification from the agency. Because agencies can directly control all aspects of GOTS products, these are generally preferred for government purposes.
Information Technology	IT	Any equipment or interconnected system or subsystem of equipment, that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information.
IT Initiative		Expenditure of money on IT. Within HUD and much of the Federal government, the term IT initiative is often used synonymously with IT initiative.
IT Investment Management	ITIM	A management process for ongoing identification, selection, control, and evaluation of initiatives in information resources. The process links budget formulation and execution, and is focused on agency missions and achieving specific program outcomes. Also commonly referred to as Capital Planning and Investment Control (CPIC).
IT Investment Management Maturity Model		A comprehensive model for assessing processes within an organization, including engineering, management, and organizational processes for ITIM.
IT Life Cycle Framework		A HUD planning and integration framework consisting of architecture, investment, and implementation. It provides the means to ensure that IT initiatives are driven by the HUD EA.
IT Strategic Plan		Defines the mission, vision, goals, and objectives of HUD's IT practice. Used to guide the capital planning, budgeting, and management of IT resources in support of HUD's mission.
Line of Business	LOB	The second layer in the BRM taxonomy, below Business Area. HUD's LOBs represent a strategic view of HUD's business. Each LOB provides a unique set of business services to customers and plays a unique role in fulfillment of HUD's mission (e.g., Single Family Housing). LOBs provide business services to HUD customers either directly, or through a partner. In order to provide business services, LOBs carry out a set of business functions (e.g., Grants Management, Direct Loans, etc.).
Milestones		Events or products that mark significant progress towards completion of strategic goals, objectives, or actions.
Mission		HUD's business mission is a succinct statement that articulates the Department's reason for existence. It is the primary public description of "what" HUD does and "why" it exists. HUD's IT mission statement articulates the purpose of HUD's OCIO and informs the role of IT in HUD's operations.
Objective		The purpose toward which an endeavor is directed. Within the context of HUD's strategic planning, an objective is a tactical-level statement that describes HUD's plans for achieving its strategic goals. See Goal.

## APPENDIX G (Continued)

Term	Acronym	Definition
Partner		Any organization that has a relationship with HUD focused on the delivery of HUD products and services or fulfillment of HUD's mission.
Performance Reference Model	PRM	A standardized framework to measure the performance of major IT initiatives and their contribution to program performance.
Reference Model		A hierarchical construct that provides a distinct reference point from which organizations can model and assess their business, performance, data, application, technology, and security environments. Organizations can leverage reference models to develop views of these different layers of their operations, identifying opportunities for process improvement and automation.
Segment Architecture		An architecture for a HUD line of business or a common crosscutting IT service. Examples of HUD's LOBs include Single Family Housing and Multi-Family Housing Finance. Examples of common crosscutting IT services that are shared across many LOBs include Workflow Management, Document Management, and Case Tracking. Compared to EA, segment architectures focus more narrowly and more deeply into the details of a segment. They map out reengineered business processes, specific automation targets, and implementation plans. HUD has begun to define Segment Architectures for several LOBs and crosscutting service segments.
Service-Oriented Architecture	SOA	An architectural concept in which the functionality or capabilities of systems or application are separated out into discrete services or components that can be shared and reused across an organization to support business requirements.
Stakeholder		People or organizations with a stake or interest in a particular HUD issue or resource.
Standard		The third layer in the Technical Reference Model (TRM) taxonomy, below Service Category. It encompasses hardware, software, or specifications that are widely used and accepted (de facto) or are sanctioned by a standards organization (de jure).
Strategic Portfolio Review	SPR	The SPR reviews HUD's IT initiatives for alignment with the EA, among other factors, and makes recommendations to both the Technology Investment Board Executive Committee (TIBEC) and program/ project managers.
Target EA		The IT Strategic Plan is one of several IT planning strategies for the Department. HUD's IT Strategic Plan identifies IT priorities that other HUD IT implementation plans such as HUD's Target EA, Strategic Portfolio Review (SPR), EA Transition Plan, E-Government Strategic Plan, and IT Security Strategy can further decompose.
Technical Reference Model	TRM	A taxonomy for describing the standards, specifications, and technologies supporting the secure delivery, exchange, and construction of business and application components.
Values		Core principles that drive the relationships between individuals of a social body.
Vision		A high-level view of how HUD's target business and technology environments will look in the future.

## APPENDIX H

### APPENDIX H: ACRONYM LIST

Acronym	
ARB	Architecture Review Board
BRM	Business Reference Model
C&A	Certification and Accreditation
CAIVRS	Credit Alert Interactive Voice Response System
CIO	Chief Information Officer
CMM	Capability Maturity Model
COTS	Commercial off-the-shelf
CPD	Community Planning and Development
CTO	Chief Technology Officer
DBMS	Database Management System
EA	Enterprise Architecture
FEA	Federal Enterprise Architecture
FHA	Federal Housing Authority
FHAC	Federal Housing Authority Connection
FY	Fiscal Year
G2B	Government to Business
G2C	Government to Citizen
G2G	Government to Government
GAO	Government Accountability Office
GOTS	Government off-the-shelf
GPEA	Government Paper Elimination Act
GPRA	Government Performance Results Act
HIFMIP	HUD Integrated Financial Management Improvement Project
HIHRTS	HUD Integrated Human Resources and Training System
HITS	HUD IT Services
HR	Human Resources
HRM	Human Resources Management
HTTP	Hyper Text Transfer Protocol
HUD	Housing and Urban Development
IDIS	Integrated Disbursement and Information System
IEE	Internal Efficiency and Effectiveness
ITMRA	Information Technology Management Reform Act
IPT	Integrated Product Team
Ipv6	Internet Protocol version 6
IRM	Information Resources Management
ISO	Information Security Officer
IT	Information Technology
ITIM	Information Technology Investment Management
ITSP	Information Technology Strategic Planning
WLAN	Wireless Local Area Network
LOB	Lines of Business
OCIO	Office of the Chief Information Officer
OIG	Office of the Inspector General
OMB	Office of Management and Budget
OSS	Open Source Software
PART	Program Assessment Rating Tool
PDR	Policy Development and Research
PIH	Public and Indian Housing

## APPENDIX H (Continued)

Acronym	
PIR	Post-Implementation Reviews
PMA	President's Management Agenda
PRM	Performance Reference Model
QOS	Quality of Service
RHA	Rental Housing Assistance
RTI	Real Time Infrastructure
SEAT	Seat Management
SFH	Single Family Housing
SMART	Specific, Measurable, Achievable, Results-oriented, Time-limited
SOA	Service-oriented Architecture
SOAD	Service-oriented Analysis and Design
SOAP	Simple Object Access Protocol
SOP	Standard Operating Procedure
SWOT	Strengths, Weaknesses, Opportunities, Threats
TIBEC	Technology Investment Board Executive Committee
TIBWG	Technology Investment Board Working Group
TRM	Technical Reference Model
UDDI	Universal Description, Discovery, and Integration
USDA	U.S. Department of Agriculture
VA	Veterans Affairs
W3C	World Wide Web Consortium
WPA	Wi-Fi Protected Access
WSDL	Web Services Description Language
XML	Extensible Markup Language